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# ILLINOIS REGISTER

## Rules of Governmental Agencies

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Secretary of State

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288 Centennial Bldg.  
Springfield, IL 62756

(217) 782-9786

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## INTRODUCTION

The Illinois Register is the official state document for publishing public notice of rulemaking activity by State governmental agencies. The table of contents is arranged categorically by rulemaking activity and alphabetically by agency within each category. Rulemaking activity consists of proposed or adopted new rules or amendments to or repealers of existing rules, including those by emergency or peremptory action.

The *Register* also contains Executive Orders and Proclamations issued by the Governor, notices of public information required by State statute, and activities (meeting agendas, Statements of Objection or Recommendation, etc.) of the Joint Committee on Administrative Rules (JCAR), a legislative oversight committee which monitors the rulemaking activities of State agencies. In addition, the *Register* contains a Cumulative Index listing alphabetically by agency the Parts (sets of rules) on which rulemaking activity has occurred in the current *Register* volume and a Sections Affected Index listing, by Title of the *Illinois Administrative Code*, each Section (including supplementary material) of a Part on which rulemaking activity has occurred in the current volume. Both indices are action coded and are designed to aid the public in monitoring rules.

The *Register* will serve as the update to the *Illinois Administrative Code*, a compilation of the rules of State agencies. The most recent edition of the *Code* along with the *Register* comprise the most current accounting of the State agencies' rules.

The *Illinois Register* is the property of the State of Illinois, granted by the authority of the Illinois Administrative Procedure Act (Ill. Rev. Stat. 1989, ch. 127, pars. 1001 et seq., as amended).

## REGISTER PUBLICATION SCHEDULE 1991

Material Rec'd after 4:30 p.m. on:	And before 4:30 p.m. on:	Will be in Issue #:	Published on:	Material Rec'd after 4:30 p.m. on:	And before 4:30 p.m. on:	Will be in Issue #:	Published on:
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June 18, 1991	June 25, 1991	27	July 5, 1991	Dec. 24, 1991	Dec. 31, 1991	2	Jan. 10, 1992

Please note: When the Register deadline falls on a State holiday, the deadline becomes 4:30 p.m. on Monday (the day before).





## COMMISSIONER OF BANKS AND TRUST COMPANIES

## NOTICE OF PROPOSED RULE

- 1) The Heading of the Part: Acquisition of Former Main Banking Premises or Branches of Eligible Depository Institutions

- 2) Code Citation: 38 Ill. Adm. Code 307

- 3) Section Numbers: 307.10  
307.20  
Proposed Action: New Section  
New Section

- 4) Statutory Authority: Implementing Section 31(e)(5) and authorized by Section 48(6) of the Illinois Banking Act (Ill. Rev. Stat. 1989, ch. 17, pars. 338(e)(5) and 359(6)).

- 5) A Complete Description of the Subjects and Issues Involved: This proposed rule defines when the former main banking premises, main office, branch or branches of the eligible depository institution are deemed to be "acquired" by the state bank, insured savings association or national bank pursuant to Section 31(e)(5) of the Illinois Banking Act (Ill. Rev. Stat. 1989, ch. 17, par. 338(e)(5)).

- 6) Will this proposed rule replace an emergency rule currently in effect? No.

- 7) Does this rulemaking contain an automatic repeal date?  
Yes ☐ No ☒

- 8) Does this proposed rule contain incorporations by reference? No.

- 9) Are there any other proposed amendments pending on this Part? No.

- 10) Statement of Statewide Policy Objective: The proposed rule does not create a mandate on units of local government, school districts or community college districts. Only state banks are subject to this proposed rule.

- 11) Time, Place and Manner in which interested persons may comment on this proposed rulemaking: Interested persons who desire to comment on this proposed rulemaking may submit their comments in writing no later than 45 days after the publication of this Notice to:

William L. Conaghan or Mary E. Schroeder  
Commissioner of Banks and Trust Companies  
310 South Michigan Avenue, Suite 2130  
Chicago, Illinois 60604

## COMMISSIONER OF BANKS AND TRUST COMPANIES

## NOTICE OF PROPOSED RULE

- 12) Initial Regulatory Flexibility Analysis?

- A) Date rule was submitted to the Business Assistance Office of the Department of Commerce and Community Affairs: The Department of Commerce and Community Affairs has determined that state banks are not small businesses. Therefore, the proposed rule was not submitted to the Business Assistance Office.

- B) Types of small businesses affected: Small businesses are not affected by this rule.

- C) Reporting, bookkeeping or other procedures required for compliance: N/A

- D) Types of professional skills necessary for compliance: N/A

The full text of the Proposed Rule begins on the next page:



## COMMISSIONER OF BANKS AND TRUST COMPANIES

## NOTICE OF PROPOSED RULE

TITLE 38: FINANCIAL INSTITUTIONS  
CHAPTER II: COMMISSIONER OF BANKS AND TRUST COMPANIES

## PART 307

ACQUISITION OF FORMER MAIN BANKING PREMISES OR  
BRANCHES OF ELIGIBLE DEPOSITORY INSTITUTIONS

Section  
307.10 Purpose  
307.20 General Rule

AUTHORITY: Implementing Section 31(e)(5) and authorized by Section 48(6) of the Illinois Banking Act (Ill. Rev. Stat. 1989, ch. 17, pars. 338(e)(5) and 359(6)).

SOURCE: Adopted at 15 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_.

## Section 307.10 Purpose

Section 31(e)(5) of the Illinois Banking Act (Ill. Rev. Stat. 1989, ch. 17, par. 338(e)(5)) authorizes among other things, a state bank to acquire the former main banking premises, main office, branch or branches of an eligible depository institution from another state bank, insured savings association or national bank within thirty days after the other state bank, insured savings association or national bank "acquired the former main banking premises, main office, branch or branches" from the eligible depository institution directly or its receiver. This Part defines when the former main banking premises, main office, branch or branches of the eligible depository institution are deemed to be "acquired" by the state bank, insured savings association or national bank.

## Section 307.20 General Rule

- a) A leased location is deemed to be acquired at the time the lease for such location is assigned by the eligible depository institution or its receiver to the bank which acquired the assets and assumed the liabilities of the eligible depository institution.
- b) A location which was owned by the eligible depository institution is deemed to be acquired at the time title to the property is obtained by the bank from the eligible depository institution or its receiver.

## COMMISSIONER OF BANKS AND TRUST COMPANIES

## NOTICE OF PROPOSED RULE

1) The Heading of the Part: Administration of Collateral  
Obtained in Collection of a Debt

## 2) Code Citation: 38 Ill. Adm. Code 354

Section Numbers:	Proposed Action:
354.10	New Section
354.20	New Section
354.30	New Section
354.40	New Section
354.50	New Section
354.60	New Section
354.70	New Section

## 4) Statutory Authority: Implementing Sections 3 and 5(12)(a) and authorized by Section 48(6) of the Illinois Banking Act (Ill. Rev. Stat. 1989, ch. 17, pars. 309, 311(12)(a) and 359(6)).

## 5) A Complete Description of the Subjects and Issues Involved: This Part defines the term "administer" as it relates to collateral obtained in collection of a debt and establishes guidelines with respect to actions that can be taken by a state bank to dispose of the collateral.

## 6) Will this proposed rule replace an emergency rule currently in effect? No.

## 7) Does this rulemaking contain an automatic repeal date?

Yes ☒ No ☐

## 8) Does this proposed rule contain incorporations by reference? No.

## 9) Are there any other proposed amendments pending on this Part? No.

## 10) Statement of Statewide Policy Objective: The proposed rule does not create a mandate on units of local government, school districts or community college districts. Only state banks are subject to this proposed rule.

## 11) Time, Place and Manner in which interested persons may comment on this proposed rulemaking: Interested persons who desire to comment on this proposed rulemaking may submit their comments in writing no later than 45 days after the publication of this Notice to:



## COMMISSIONER OF BANKS AND TRUST COMPANIES

## NOTICE OF PROPOSED RULE

William L. Conaghan or Mary E. Schroeder  
 Commissioner of Banks and Trust Companies  
 310 South Michigan Avenue, Suite 2130  
 Chicago, Illinois 60604

## 12) Initial Regulatory Flexibility Analysis?

- A) Date rule was submitted to the Business Assistance Office of the Department of Commerce and Community Affairs: The Department of Commerce and Community Affairs has determined that state banks are not small businesses. Therefore, the proposed rule was not submitted to the Business Assistance Office.
- B) Types of small businesses affected: Small businesses are not affected by this rule.
- C) Reporting, bookkeeping or other procedures required for compliance: N/A
- D) Types of professional skills necessary for compliance: N/A

The full text of the Proposed Rule begins on the next page:

## COMMISSIONER OF BANKS AND TRUST COMPANIES

## NOTICE OF PROPOSED RULE

TITLE 38: FINANCIAL INSTITUTIONS  
 CHAPTER II: COMMISSIONER OF BANKS AND TRUST COMPANIES

PART 354  
 ADMINISTRATION OF COLLATERAL OBTAINED IN  
 COLLECTION OF A DEBT

Section	Definitions
354.10	Purpose
354.20	General Rule
354.30	Plan of Disposition
354.40	Contents of Plan of Disposition
354.50	Factors to be Considered
354.60	Procedure
354.70	

AUTHORITY: Implementing Sections 3 and 5(12)(a) and authorized by Section 48(6) of the Illinois Banking Act (Ill. Rev. Stat. 1989, ch. 17, pars. 309, 311(12)(a) and 359(6)).

SOURCE: Adopted at 15 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_.

## Section 354.10 Definitions

"Act" means the Illinois Banking Act, (Ill. Rev. Stat. 1989, ch. 17, par. 301 et seq.), as now or hereafter amended.

"administer" means actions taken to insure, repair, maintain, operate and otherwise preserve the value of collateral at the time it was obtained by the state bank.

"collateral" means real or personal property given by a borrower to a state bank as security for a loan.

"Commissioner" means the Commissioner of Banks and Trust Companies.

## Section 354.20 Purpose

Section 3 of the Act authorizes a state bank to "loan money on personal or real estate security." (Ill. Rev. Stat. 1989, ch.



## COMMISSIONER OF BANKS AND TRUST COMPANIES

## NOTICE OF PROPOSED RULE

17, par. 309). Section 5(12) of the Act further authorizes a state bank to establish a subsidiary to hold title to and administer assets acquired as a result of the collection of loans. Included in these express powers is the incidental right to put assets which a state bank acquires in collection of a debt in condition for disposition.

## Section 354.30 General Rule

A state bank or its subsidiary may take actions which are necessary to administer collateral obtained in collection of loans, provided such actions are in conjunction with ongoing efforts to dispose of the collateral by sale or liquidation. Such actions shall be for the sole purpose of enabling the bank to recoup remaining principal and interest balances rather than to speculate in future profits.

## Section 354.40 Plan of Disposition

- a) A bank must have a separate written plan of disposition for every parcel of real estate and every ongoing business acquired in collection of a debt.
- b) For all other collateral (i.e. stocks and automobiles) acquired in collection of a debt, the bank must have a written plan for each class of collateral (i.e. one plan of disposition for stock, one plan of disposition for automobiles).

## Section 354.50 Contents of Plan of Disposition

- a) The written plan for the disposition of collateral shall set forth the following:
  - 1) a projected date of disposal;
  - 2) actions to be taken by the bank in connection with the disposition of collateral within the projected time frame; and
  - 3) estimated cost of actions to be taken.
- b) If the collateral is an ongoing business, current and

## COMMISSIONER OF BANKS AND TRUST COMPANIES

## NOTICE OF PROPOSED RULE

projected financial information should be included in the plan of disposition in addition to the items listed in subsection (a) above. Such financial information shall include:

- 1) a balance sheet setting forth current assets, non-current assets, fixed assets, current liabilities, non-current liabilities and net-worth;
- 2) an income statement setting forth operating income, operating expenses, non-operating income, non-operating expenses and extraordinary items; and
- 3) any other information necessary to support the projections.

## Section 354.60 Factors to be Considered

The following factors may be relevant in determining whether an action or actions constitute administration of collateral by the bank:

- a) whether the potential or actual dollar cost of the deterioration in value justifies the level of expenditure;
- b) whether the action or actions taken will likely increase rather than preserve the value of the collateral; and
- c) in situations where an ongoing business is an inherent part of the collateral, whether the expense of preserving the ongoing business will create a sale price which would provide the bank with a net recovery greater than the liquidation value of the physical assets of the business.

## Section 354.70 Procedure

A state bank may request a declaratory ruling pursuant to Section 9(a) of the Illinois Administrative Procedure Act (Ill. Rev. Stat. 1989, ch. 127, par. 1009(a)) from this Agency that an



## COMMISSIONER OF BANKS AND TRUST COMPANIES

## NOTICE OF PROPOSED RULE

action or actions constitute administration of collateral by submitting a written request to the Commissioner which describes the proposed action or actions and contains information addressing the factors set forth in this Part and any other information.

## DEPARTMENT OF COMMERCE AND COMMUNITY AFFAIRS

## NOTICE OF PROPOSED AMENDMENTS

- 1) Heading of the Part: Technology Advancement and Development Act Programs
- 2) Code Citation: 14 Ill. Adm. Code 545
- 3) Section Numbers:

545.315	<u>Proposed Action:</u>
545.320	Amendment
545.325	Amendment
545.330	Amendment
545.345	Amendment
545.350	Amendment
545.355	Amendment
545.360	Amendment
- 4) Statutory Authority: Implementing Sections 1004, 3001(iii), 3003, 3004(c), and 3005 and authorized by Section 1004(e) of the Technology Advancement and Development Act (Ill. Rev. Stat. 1989, ch. 127, pars. 3701-4, 3703-1(iii), 3703-3, 3703-4(c), and 3703-5).
- 5) A Complete Description of the Subjects and Issues Involved: This rulemaking serves to amend the "Technology Advancement and Development Act Programs" rules. Major revisions include: broadening the eligible grant categories and dollar limit to reflect program knowledge and experience during the first year of the program and modifying the application questions to more accurately reflect the application proposal.
- 6) Will these proposed amendments replace emergency amendments currently in effect? No.
- 7) Does this rulemaking contain an automatic repeal date? No.
- 8) Do these proposed amendments contain incorporations by reference? No.
- 9) Are there any proposed amendments pending on this Part? No.
- 10) Statement of Statewide Policy Objectives: This rulemaking does not create or expand a state mandate as defined in Section 3(b) of the State Mandates Act (Ill. Rev. Stat. 1989, ch. 85, par. 2203).
- 11) Time, Place, and Manner in which interested persons may comment on this proposed rulemaking: Interested persons may present their comments concerning this proposed rulemaking in writing within 45 days after this edition of the Illinois Register to the following:

Mr. John D. Taylor, Deputy Director  
Department of Commerce and Community Affairs  
Bureau of Program Administration



## DEPARTMENT OF COMMERCE AND COMMUNITY AFFAIRS

## NOTICE OF PROPOSED AMENDMENTS

620 East Adams Street, 5th floor  
Springfield, Illinois 62701  
(217) 782-6136

12) Initial Regulatory Flexibility Analysis:

- A) Date rule was submitted to the Business Assistance Office of the Department of Commerce and Community Affairs: March 5, 1991.
- B) Types of small businesses and small municipalities affected: This rulemaking does not affect small municipalities. Eligible small businesses may apply for funds under the Business Modernization Assessment Grant Program.
- C) Reporting, bookkeeping or other procedures required for compliance: One program report has been simplified while the others remain unchanged.
- D) Types of professional skills necessary for compliance: Applicants should already possess the necessary skills for compliance.

The full text of the Proposed Amendments begins on the next page:

## DEPARTMENT OF COMMERCE AND COMMUNITY AFFAIRS

## NOTICE OF PROPOSED AMENDMENTS

TITLE 14: COMMERCE  
SUBTITLE C: ECONOMIC DEVELOPMENT  
CHAPTER I: DEPARTMENT OF COMMERCE AND COMMUNITY AFFAIRS

## PART 545

## TECHNOLOGY ADVANCEMENT AND DEVELOPMENT ACT PROGRAMS

## SUBPART A: TECHNOLOGY CHALLENGE GRANT PROGRAM

Section	Purpose of Program
545.10	Definitions
545.20	Incorporation by Reference
545.25	Program Responsibilities
545.30	Eligible Applicants
545.40	Application Process
545.50	Review of Applications
545.60	Program Administration Requirements
545.70	

## SUBPART B: TECHNOLOGY VENTURE INVESTMENT PROGRAM

Section	Purpose
545.110	Definitions
545.120	Application Cycle
545.130	Application Review
545.140	Application Documentation
545.150	Application Evaluation
545.160	Funding
545.170	Selection for Funding
545.180	Allowable Leverage
545.190	Administrative Requirements
545.195	

## SUBPART C: BUSINESS MODERNIZATION RETOOLING LOAN PROGRAM

Section	Purpose
545.210	Definitions
545.215	Eligible Businesses
545.220	Eligible Uses of Loan Funds
545.225	Application Documentation
545.230	Application Evaluation
545.235	Selection for Funding
545.240	Funding Waivers
545.245	Allowable Leverage
545.250	Loan Agreement
545.255	Loan Terms
545.260	Loan Security
545.265	Maintenance and Insurance of Property
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DEPARTMENT OF COMMERCE AND COMMUNITY AFFAIRS

NOTICE OF PROPOSED AMENDMENTS

545.275 Administrative Requirements  
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545.290 Events of Default

SUBPART D: BUSINESS MODERNIZATION ASSESSMENT GRANT PROGRAM

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545.310 Program Purpose and Mission  
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545.325 Eligible Businesses  
545.330 Application Requirements  
545.335 Application Process  
545.340 Application Evaluation Standards  
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545.355 Administrative Standards for Grant Recipients  
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545.420 Definitions  
545.430 Applications  
545.440 Application Review Process  
545.450 Financial Assistance  
545.460 Administrative Standards  
545.470 Financial Assistance Standards  
545.480 Audits  
545.490 Modification, Suspension and Termination of Financial Assistance  
545.495 General Terms Governing Relending

AUTHORITY: Implementing and authorized by the Technology Advancement and Development Act (Ill. Rev. Stat. 1989, ch. 127, par. 3701-1 et seq.).

SOURCE: Emergency rules adopted at 13 Ill. Reg. 19753, effective December 1, 1989, for a maximum of 150 days; emergency expired April 30, 1990; adopted at 14 Ill. Reg. 9016, effective May 29, 1990; amended at 15 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_.

NOTE: Capitalization denotes statutory language.

SUBPART D: BUSINESS MODERNIZATION ASSESSMENT GRANT PROGRAM

Section 545.315 Definitions

DEPARTMENT OF COMMERCE AND COMMUNITY AFFAIRS

NOTICE OF PROPOSED AMENDMENTS

"Application" -- A request for program funds including the required statistical and narrative information and attachments.  
"Department" -- The Illinois Department of Commerce and Community Affairs.

"Grant" -- Funds provided from the Department through this program.

"Grant Agreement" -- Contractual agreement between the Department and Recipient, which includes the scope of work to be provided, the budget, and all terms and conditions of the contract.

"Program" -- The Business Modernization Assessment Grant Program.

"Project" -- Any activity or activities funded under this program.

"Recipient" -- Any eligible company applicant receiving services funds under this program.

(Source: Amended at 15 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

Section 545.320 Eligible Grant Categories

a) "Competitive Base Analysis" means a short term consulting evaluation of the existing and potential competitive (productivity and profitability) circumstances of a firm or group of firms in key functional areas of the firm. The analysis shall be developed through a combination of plant walk-throughs, statistical data collection, review of available published literature, and extensive interviewing of key personnel, customers, competitors, and other experts who bring perspective to the underlying issues.<sup>7</sup>

1) General overview -- The analysis shall result in a written report which shall be submitted to the company and which at a minimum, contains as applicable:

1) A) General overview -- Specifications of Basic competitive information: on the firm's current business strategies, manufacturing technology and process, operations management current and historical market base and market niche, organizational resources, human resources and general and availability of access to capital and financial condition, including functional areas of:

B) Cost based analysis: a functional overview of the



## DEPARTMENT OF COMMERCE AND COMMUNITY AFFAIRS

## NOTICE OF PROPOSED AMENDMENTS

manufacturing enterprise and costs associated with each function to determine if associated costs appear abnormally high to determine which add or enforce missing functions and projects which attack high cost areas;

C) Industrial engineering analysis: an overall evaluation of the production environment, targeting specific areas that are created to productivity including plant and equipment configuration, work scheduling techniques, machine and worker productivity rates, inventory systems, production controls techniques, shop floor information reporting, quality control efforts.

A) Manufacturing technology: --machinery-of-the-firm-and industry-level-of-use-of-automated-or-computerized technology;--strengths;--weaknesses;--and--potential changes-and-improvements-needed-to-remain-viable;

B) Operations--management:--production--and--facilities capacity;--receiving-and-shipping;--material-flow-and handling;--production-scheduling;--and-quality-control systems;

E) Market--and--market--niches:--firm's--position--in domestic-and-international-markets-in-relation-to-its industry;--and--its--relations--with--suppliers--and customers;

B) Organizational-and-human-resources:--labor/management relations;--worker--skills--upgrading--and--training needs;--job-designs-and-work-performance-as-well-as front-office-management;--appropriateness-of-business goals-and-strategies;--and-the-firm's-ability-to innovate-and-change;--and

E) General financial condition:--stability-and-growth prospects-of-the-company-and-its-products-including those-companies-involved-in-local-employee-buy-out; corporate-restructuring-or-corporate-turnaround-and an-assessment-of-the-potential-prospects-for-job preservation-and-future-job-growth.

2) Problem and opportunity identification -- Identification and analysis of primary productivity or profitability problems in each of the key functional areas and factors which the firm must address for continuous success in the marketplace.

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3) Baseline information -- Current year financial and production statistics and data to serve as a baseline for measuring productivity improvements.

4) Problem resolution briefing -- The analysis shall include a written report which will be provided to the company and the Department, discussing:

A) Short term solutions -- identification of immediate, demonstrable, low cost measures, including short term and remedial measures, for each of the functional areas requiring improvement; a preliminary cost/benefit analysis; and a plan-of-simple-actions and--procedures--to--improve--productivity--and-profitability.

5) B) Longer term follow-on strategies -- and-consultants

A) To-the-extent-required;--specification-of-alternative strategies;--selection--criteria--and--cost/benefit analysis-for-the-implementation-of-these-alternative strategies-and

B) a specific prioritized list of appropriate higher cost, longer term technological innovations in operations management, manufacturing technology, or capital equipment and identification of two or more private vendors, consultants, trade associations, etc., qualified to provide recommended services.

C) If appropriate, proposals or other documentation for the next steps in the company's modernization plans.

6) D) Referrals to public sources of assistance -- For example, Small Business Development Centers for general business assistance, community colleges for employee training, universities and Technology Centers for product commercialization research and development, and state sources of financing for retooling and modernization implementation.

b) "Productivity Improvement Services" means problem solving services including the analysis, design, planning, introduction, and assistance in implementation of appropriate technological innovations to improve productivity and profitability (and thus, competitiveness). These problem solving services could serve one firm or a group of firms which is aware of one or more particular productivity issues that must be addressed, generally as the result of a Competitive Base Analysis. Productivity Improvement



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Services shall include any or all of the following, as applicable:

1) Technology feasibility studies -- Identification of alternative strategies == manufacturing technologies and processes in place at the facility and identification of exemplary strategies currently in use in comparable industries or companies, for example, machinery, equipment, manufacturing processes or designs, and operational or organizational procedures.

2) Selection--criteria ----- For--determining--and--focusing appropriate type and level of technologies, for example, based-on-return-on-investment-and-significance-of-benefit, current-and-future-cost-impact--versus-current-budget constraints--or-capital--availability--schedules,--project length-and-timing-issues, and short-range and long-range strategic-business-goals.

3) Cost-and-benefit-analysis----- Identification-of-the-expected costs-of-technological-innovations-(capital-outlay,--finance charges,--training-maintenance,--etc.);--and--an-associated financial-return-and-benefit-analysis-to-the-company-(job creation/retention,--revenue--gains,--production--level improvements);

4) Improvement-plans ---- Development-plans-including-project descriptions,--detailed--milestones,--time--schedules--and targeted-completion--dates--for--the--implementation--of advanced-machinery-or-equipment,--manufacturing-processes-or designs,--or-operational-or-organizational-procedures.

2)5) Operations management services -- Assistance in improving organizational or operations management procedures such as production scheduling and control, material requirements management, capacity requirements planning, quality control systems, etc. This would generally include engaging appropriate consultants with expertise in the procedures and techniques selected, and education and orientation of the company's management and project team to the key principles, technical knowledge, or skills required to implement the management procedures.

3)6) Engineering/design services -- Manufacturing-technology selection--or--modification Assistance in altering, automating or integrating manufacturing technologies in design and engineering; fabrication/machining and assembly; and material handling, inspection and testing, etc. This could include general and specialized engineering

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consultation audits; assessments of manufacturing technologies in place at the facility and technologies currently available in the marketplace; and technical and engineering assistance with identification, evaluation, selection, installation, and performance testing of the altered manufacturing technology.

4)7) Equipment acquisition -- Assessment-of-capital-investments Assistance in selecting capital investments for machinery and equipment. This would generally include assessment of manufacturing equipment currently available, assistance with identification of available vendors, and review of vendor support and warranties; development of specific engineering and operational requirements for the equipment; and evaluation of the expected performance of the product.

8) Improvement-monitoring-and-feedback----- Including-advice-and consultation-during-the-conversion-to-the-updated-procedure or methodology,--assistance-with-pilot-runs-and-debugging, post-conversion-evaluation-of-the-improved-organizational or-operational-procedures,--and-evaluation-and-comparison-of the-company's-performance-as-a-result-of-investment-in-the productivity-improvements;

5) Network or group services -- Industrial consulting and engineering services to a group of similar firms which serves the purposes of the firms which are involved. Such activities will vary as the priorities and opportunities of those firms vary and could include multifirm strategic planning, joint industrial engineering services, cooperative marketing networks, common buying or procurement networks, sectoral quality assurance, or similar activities.

(Source: Amended at 15 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

## Section 545.325 Eligible Businesses

a) Small, medium-sized and mature firms or third parties applying on their behalf are eligible to apply for and receive funds under the provisions of this program, provided that:

- 1) the firm is located in Illinois or the benefit of the program serves an Illinois based plant or branch and
- 2) the firm (or its predecessor organization) has been in operation for two years or more or has a meaningful operating history.



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- b) To be eligible, a firm must show a need for Productivity Improvement Services or Competitive Base Analysis because it:

- 1) Has the potential to "Improve Productivity" such as
  - A) reduce high warranty costs, high rework and modification costs, or repeated machine down-time or
  - B) improve production to a level (output per worker, sales per employee, etc.) that equals or exceeds the average or norms for the industry; or
- 2) Has the potential to reverse an actual or expected "Decline in Production" which is a decline in the number of hours of employment and a decline in sales value or quantity, in comparison with previous monthly, quarterly, or annual statistics for the same period of the previous year for reasons such as
  - A) steady, long term structural deterioration of the industry,
  - B) success of foreign competition in capturing domestic and international markets, etc., or
  - C) limited opportunity for market share which is directly attributable to industry located outside of the state or outside of the nation; or

- 3) Has a need or potential to "Improve Competitive Advantage"

- A) by improving product cost, design, quality, or cycle time to meet a consumer demand for which the current product is not competitive,
- B) because the company is required to improve productivity to meet quality standards of its primary customers, or
- C) because the company requires greater flexibility in its manufacturing process to ease product changes and to assure sensitivity to customer needs.

- c) No firm shall be excluded from participating in this program by reason of amount of sales or income or number of employees. If funds are available, the Department may target assistance through this program, based on the following factors: medium-sized (50 to 500 employees) businesses in major industrial groups including: firms in industries in which Illinois is an acknowledged leader,

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to assist them in maintaining their dominant national market position; Illinois' core industries, those industries concentrated in the state and employing 20,000 or more, due to the economic benefits created by their continued operation in the state; and firms in industries which have suffered the greatest loss in employment in recent years, which have the potential to regain lost markets.

(Source: Amended at 15 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

## Section 545.330 Application Requirements

Applications for Grants shall be submitted by firms or may be submitted by second parties upon specific written approval of a firm on forms provided by the Department. Any page with proprietary information, trade secrets, or other confidential information must be marked "Confidential." Applications shall include the following:

- a) Company Applicant information shall include the following, if applicable:

- 1) Application Cover Sheet -- The Applicant's name, address, and telephone number, and the names of the Applicant's Chief Executive Officer or other authorized officer, and a contact person.

- 2) Business Plan -- If the Applicant has prepared a business plan.

- 3) Company Applicant History -- A very brief but thorough (one page) description of the Applicant's business including

- A) type of business operation, year founded, organizational structure, and significant events in the company's history.

- B) number, location and nature of manufacturing or production and distribution or sales facilities, domestic (in-state), foreign (out-of-state), and alien (outside the U.S.).

- 4) Company Applicant Management and Capabilities -- A listing of officers, directors and management, their positions (titles and/or responsibility for operation of the company), and percentage of ownership.

- 5) Goods-and-Services Markets and Customer Base --

- A) a description of the types and locations of markets



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to which the Applicant sells its products or services and recent trends in sales:

B)A) a description of the goods and services produced by the company Applicant in Illinois; any significant changes in the products or goods produced by the firm Applicant; the markets served by the firm;

C)B) identification of which of the articles produced are being adversely affected; three year trends in production and sales quantity, unit price, unit volume and gross margins; and two year projections in the same categories;

e) number, location and nature of manufacturing/production and distribution/sales facilities; domestic (in-state); foreign (out-of-state); and alien (outside the U.S.); and

6)B) Employees -- Number and types of production, management and sales employees.

7)5) Corporate Financial Statements --

A) historical statements (or equivalent federal tax forms) for the past one to three years, including Profit and Loss Statements, Balance Sheets, Cash Flow Statements, and disclosure of contingent liabilities and

B) no more than two years of projections of the Profit and Loss Statements, Balance Sheets, and Cash Flow Statements. Audited financial statements are preferred; prepared financial statements are the minimum which is acceptable.

b) A statement and description of the project for which funds are being sought as applicable:

1) Justification for Productivity Improvement Services or Competitive Base Analysis --

A) an indication of the kind of problem(s) or issues the Applicant is currently facing (as listed in Section 545.325(b))

B)A) a description of the Applicant's past and present efforts to analyze and improve its competitive condition and productivity structure.

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2) Justification of Need for State Financial Assistance --

A)B) a narrative justification of need for improvement in productivity/competitiveness such as to "Improve Productivity," reverse a "Decline in Production" or "Improve Competitive Advantage," and

B)C) a demonstration that adequate resources are not available internally, for example, by describing what will be done that would not be done if the Grant were not available.

3) Benefits Expected -- A description of the employment and revenue benefits expected to be created as a result of the project, including number of jobs created or retained, increased sales or decreased expenses, or change in level of production.

4) Project Description --

A) a description of the objective(s) of the project, the scope of work and major activities to be performed to complete the project;

C) a description of the technology(ies), equipment, or procedure(s) to be analyzed and/or corrected.

5)2) Identification of the Consultant --

A) The name and qualifications of the consultant, and consultant organization and if more than one consultant is to be involved, the responsibilities of each in completing the project.

B) the total consultant hours to be provided and a time schedule listing start and end dates and key benchmarks,

C) the objective and scope of the assignment, the nature of the final report and interim progress reports, and consultant and client responsibilities during the project to assure its success, and

D) a copy of the consultant's proposal for the project, and

E)B) the anticipated charges, expenses, basis of charges (consultant cost per hour and per day) and terms of payment.



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6)3) Budget -- Indicate the costs of the Productivity Improvement Services or Competitive Base Analysis, and the source of funds to finance the costs. The budget may be submitted on forms provided by the Department and shall include information such as the cost of contractual services, the cost of materials and supplies, any travel costs, etc.

7)4) Economic Development/Competitiveness Results -- A statement of the potential results and improvements expected which shall include "Jobs," "Level of Employment," and "Revenue and Expenses"; and may include "Productivity," "Effectiveness," "Efficiency," or "General Capacity."

8)5) Labor/Management Relations -- If the purpose or result of the study is subject to a collective bargaining agreement, evidence of participation/sign off by appropriate bargaining agents.

9) Project Deliverables -- A description of the nature of services and/or plans to be prepared and a confirmation of the Applicant's awareness and understanding of reports and reporting responsibilities under the program.

10) Past Improvements or Assistance Received -- The Applicant's efforts to analyze and improve its competitive condition and productivity structure over the last two years.

11) Certifications -- Certifications by the Applicant regarding its intent to comply with applicable laws and regulations including nondiscrimination, conviction of bribery, interest of public officials, historic preservation, bid rigging, student loans, etc.

(Source: Amended at 15 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

## Section 545.345 Selection Criteria

a) Grant awards will be made on a monthly basis until all available funds are expended. A set-aside fund may be established in order to take action on those applications requiring immediate attention or quarterly allocations may be established to assure year-round availability. Quarterly allocations and set-asides, if any, shall be based on the previous demand for funds and likely grant applications (based on inquiries made to the Department) and shall be changed to allow for the types, number, and quality of requests received throughout the year.

b) Those Applicants which advance the purposes of the Act and comply

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with Section 545.340 shall be selected for an award of a Grant. The level of the Grant award will be determined in relation to:

1) LEVEL OF EXPERTISE OF THE CONSULTANT OR FIRM UNDERTAKING THE FEASIBILITY STUDY OR COMPETITIVENESS ASSESSMENT,

2) LIKELIHOOD AND EXTENT THAT THE WORK WILL RESULT IN SUBSTANTIAL IMPROVEMENT IN APPLICANT'S OPERATION, AND

3) DETERMINATION OF WHETHER AND THE EXTENT THAT IMPROVEMENT WILL RESULT IN CREATION OR RETENTION OF JOBS (Section 3004(c)(i) through (iii) of the Act) and the number of jobs impacted.

c) A Grant ceiling of 50 percent of project costs has been established by the Act, subject to waiver by the Director. The waiver will be documented and kept on file by the Department. In determining whether to waive the funding limitation, the Director shall consider the following:

1) The Applicant demonstrates to the Department through a financial analysis that the 50 percent funding limitation would prohibit an otherwise approved project, in accordance with Section 545.340, from occurring;

2) The Applicant demonstrates an extraordinary community benefit such as

A) to determine feasibility of a corporate restructuring or corporate turnaround or to prevent a bona fide corporate relocation to another state,

B) project affects a substantial number of employees, or

C) community in which the project is located is distressed or has limited economic development opportunities; or

3) The total request for State funds to serve a specific eligible business does not exceed \$10,000 \$15,000 and

A) the purpose of the request is to conduct a Competitive Base Analysis; or

B) the work to be performed is undertaken by a public or proprietary institution of higher education, a state Technology Center, a Small Business Development Center, trade association, or a non-profit organization.



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(Source: Amended at 15 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

## Section 545.350 Grant Limitations

- a) Eligible Costs -- The costs of an Applicant incurred directly as a Productivity Improvement Services or Competitive Base Analysis expense, including contractual services; consultant fees; commodities; training, materials, and supplies; travel and other project related direct expenses necessitated by the Productivity Improvement Services or Competitive Base Analysis are eligible costs which may be reimbursed with Grant proceeds. Grant funds may not be used to purchase tangible or intangible personal property having a useful life of more than one year and an acquisition cost of \$500 \$300 or more per unit.
- b) Competitive Base Analysis Grant Amounts -- The Department shall approve Grants in amounts necessary to pay a percent share of Eligible Costs as defined in subsection (a), incurred by or on behalf of an eligible business for a Competitive Base Analysis up to a maximum of \$40,000 \$15,000, unless the Director waives the percent share or maximum amount in accordance with Section 545.345(c).
- c) Productivity Improvement Services Grant Amounts -- The Department shall approve Grants in amounts necessary to pay up to 50 percent of Eligible Costs, as defined in subsection (a) incurred by or on behalf of an eligible business for Productivity Improvement Services, up to a maximum of \$100,000, unless the Director waives the percent share or maximum amount in accordance with Section 545.345(c).
- d) Cost Share Limitations -- The Department reserves the right to limit its share of project costs, for example, the Department's share of consultant cost per hour or consultant cost per day and to limit to no less than 25 percent of total project costs the amount of Recipient's share of indirect and/or in-kind expenses of the project to be considered in the computation of matching share.

(Source: Amended at 15 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

## Section 545.355 Administrative Standards for Grant Recipients

- a) Grant Agreement -- The Department will have discussions with the Applicant as needed to negotiate the Grant Agreement. The Grant Agreement will set out the scope of work of the grant, the terms and conditions of the Grant, and the period of the Grant Agreement.

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- b) Grant Period -- Any Productivity Improvement Services or Competitive Base Analysis Grant shall have period of completion as determined by the Department.
- c) Non-discrimination -- The Recipient shall refrain from unlawful discrimination in employment and undertake affirmative action to assure equality of employment opportunity and eliminate the effects of past discrimination in accordance with the Illinois Human Rights Act (Ill. Rev. Stat. 19871989, ch. 68, pars. 1-101 et seq.).
- d) Complaint Process -- In the event of a Recipient complaint, the Department will follow the procedures outlined in 47 Ill. Adm. Code 10 (Review and Appeal Procedures).
- e) Confidentiality -- Any proprietary documentary materials or data received by the Department, consisting of trade secrets, or commercial or financial information regarding the operation of any enterprise conducted by an Applicant applying for funding under this Act, or regarding the competitive position of such enterprise in a particular field of endeavor, shall be deemed to be confidential and shall not be deemed public records.
- f) Fund Availability -- Payments pursuant to a grant are subject to the availability of funds appropriated to the Department by the Illinois General Assembly. Grant funds must be expended or obligated within the period of the Grant Agreement and liquidated within the period of time in accordance with the Illinois Grant Funds Recovery Act (Ill. Rev. Stat. 19871989, ch. 127, pars. 2301 et seq.).
- g) Disbursement of Funds -- Upon approval of an application for a Grant and execution of a Grant agreement, and subject to the provisions of this program, funds to be provided by the Department to the Applicant may be immediately disbursed, may be disbursed based on work in progress, and may be disbursed subject to receipt of final or interim progress reports. Payments to the Recipient are subject to the initiation of an invoice voucher and receipt of an expenditure summary or documentation of expenses. Examples of the categories of disbursements follow:

- 1) Advance Payment - Applicant is a governmental unit or nonprofit entity.
- 2) Work in Progress Payment - Project requires reimbursement to facilitate cash flow, project term is more than one month or more than one report is to be submitted.
- 3) Single Payment - Project end report is received prior to



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disbursement by the Department.

- h) Financial Management -- The Recipient is accountable for funds received under this grant and shall maintain effective control and accountability over all funds and other assets under the grant. The Recipient shall keep records which detail and accurately document the Recipient's expenditures of grant funds for a period of two years from the end of the Grant Agreement.
- i) Interest on Grant Funds -- In accordance with Section 10 of the Illinois Grant Funds Recovery Act (Ill. Rev. Stat. 1989 Supp. 1989, ch. 127, par. 2310), all interest earned on funds held by the Recipient under the Grant shall become part of the Grant when earned. Any interest earned under the Grant, and not expended as Grant principal during the term of the Grant, shall be returned to the Department.
- j) Overpayments and Recovery of Funds -- If the grant Recipient expends Grant funds contrary to the provisions of the Grant agreement, such action shall require the repayment of those funds if the expenditure violated the Recipient's assurances or the statutory provisions. The Department shall also require repayment of Recipient expenditures that do not conform to the provisions of the Grant Agreement but do not violate statutory provisions. An overpayment of grant funds (unliquidated balance) shall promptly be refunded to the Department which shall be not later than 45 days after the expiration of the Grant Agreement. In addition, the Recipient agrees to repay the Department for any funds that are determined by the Department to have been spent in violation of the Grant agreement. Examples of the categories of disbursements follow:
- 1) advance payments -- applicant is a governmental unit or non-profit entity.
  - 2) work and progress payment -- project requires reimbursement to facilitate cash flow; project term is more than one month or more than one report is to be submitted.
  - 3) single payment -- project end report is received prior to disbursement by the Department.
- k) Department Monitoring and Evaluation -- Recipients and their subcontractors, if any, must permit any agent authorized by the Department, upon presentation of credentials to have full access to and the right to examine any documents, papers, and records of the Recipient involving transactions related to a Grant from the Department.

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- 1) Special Audits -- The Department reserves the right to conduct special audits at any time during normal working hours, of funds expended under the program.

(Source: Amended at 15 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

## Section 545.360 Project Reporting

- a) General Reports -- The Department reserves the right to require interim reports to document progress in accomplishing the objectives of a Grant. The Recipient shall provide, within 30 calendar days of a request, such interim reports on progress as may be required by the Department including consultants reports, narrative analyses, reports on job creation/retention and production level improvements and summaries of expenditures. Examples of circumstances in which interim progress reports shall be required include, but are not limited to:
- 1) applicant has failed to provide a report required by the Grant Agreement;
  - 2) reports to address inquiries from Department auditors, and;
  - 3) reports requested by the Department for year end budget and program planning purposes.
- b) Consultant Narrative Report -- The Recipient will provide to the Department within 30 calendar days of the end of the Grant agreement project, a written copy of the documents and/or reports of its Competitive Base Analysis or Productivity Improvement Services Grant including any consultant digest report or letter report.
- c) Recipient - Narrative Company Evaluation and Analysis -- Upon review of the narrative Consultant's report, the business receiving assistance shall determine and report to the Department within 30 calendar days of the end of the Grant Agreement:
- 1) Whether the consultant's cost and time estimates were accurate and whether the assignment was completed and meets the expectations of the business.
  - 2) Whether the analysis adequately identifies and diagnoses problems, and provides recommendations for corrective action.
  - 3) Whether the plan contains a sound and detailed strategy for action to be undertaken to enhance the business's success.



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- 4) If appropriate, the extent to which the recommendations were or will be installed and the timetable for such action.
- 5) Whether a reasonable prospect exists that the implementation of the plan will allow the firm to become competitive, profitable and successful and create or retain jobs in the state.
- d) **Productivity Status Report** -- The Recipient of a Grant project services shall provide the Department with a narrative statistical progress report on the status of job creation/retention, production level improvements, and revenues and expenses at the Recipient's plant/operation. The report shall be due 30 calendar days after the one-year anniversary date of the signature of the Grant. Additionally, any Recipient of a Productivity Improvement Services Grant shall provide a similar status report due 30 calendar days after the two-year anniversary date of the signature of the Grant. The Productivity Status Report shall include, but not be limited to:
- 1) **Job Creation/Retention** -- The Recipient must provide information on the net job creation/retention which has occurred as a result of the project, including: number and types of jobs and hours of employment.
  - A) **Jobs Impact** --- Identification of the number and types (production, management, sales, etc.) of jobs to be created or existing jobs to be saved and retained.
  - B) **Level of Employment** --- The increase in hours of employment offered to employees, reduction of layoff periods, etc.
- 2) **Revenue and Expense Measures** -- The Recipient must show the financial benefit to the firm, which shall be determined by: an increase in revenues or decrease in expenses.
- A) **Revenue** --- Measures --- Increased --- sales --- revenues; increased --- profit --- after --- tax; --- increased --- sales contracts.
  - B) **Expenses** --- Elimination/prevention of company losses; reduced --- production --- costs; --- reduced --- total --- company expenses; etc.
- 3) **Production Level Improvements** -- The Recipient must report the extent to which the project (as opposed to outside factors) has changed production levels, quality of output,

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- timeliness of delivery, or other general measures of increased capacity. This shall include a review of: productivity, effectiveness, efficiency, general capacity.
- A) **Productivity Measures** --- For example; increased sales value-per-labor-or-machine-hour; increased production volume-(units-or-sales-value)-per-labor-or-machine hour; increased gross income-per-employee; increased ratio-of-sales-to-production-costs; etc.
  - B) **Effectiveness** --- For example; decreased defects-per-total-products; decreased returns-per-products shipped; decreased late orders-compared-to-total orders; reduced product-warranty-costs; etc.
  - C) **Efficiency** --- For example; reduced lead-time; reduced cycle-time; reduced work-in-progress-inventory; increased total production-compared-to-budgeted-or actual-costs; decreased non-production-labor-hours-per-total-labor-hours; reduced capital-investment-per-unit-of-product-produced; etc.
  - B) **General Capacity Measures** --- For example; increased capacity-to-capture-contracts; increased-product longevity; change-in-market-share; etc.
  - e) **Expenditure and Match Summary** -- Each Recipient funded shall maintain and provide to the Department appropriate and accurate documents and records of actual Grant related obligations and expenses and appropriate documents and records (such as books of accounts, warrants, receipts for payment, reports of in-kind expenditures, time sheets and bank deposit slips) which detail the Recipient's expenditure of Grant funds and match funds.

(Source: Amended at 15 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)



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- 1) Heading of the Part: Training Services for the Disadvantaged
- 2) Code Citation: 56 Ill. Adm. Code 2610
- 3) Section Numbers: Proposed Action:  
2610.110 Amendment  
2610.120 Amendment
- 4) Statutory Authority: Implementing Section 144 of the Job Training Partnership Act (P.L. 97-300, effective October 13, 1982 (29 U.S.C. 1501), as amended by P.L. 97-404, effective December 31, 1982 (42 U.S.C. 602); P.L. 99-496, effective October 16, 1986 (29 U.S.C. 1501); P.L. 99-570, effective October 27, 1986 (21 U.S.C. 801); and P.L. 100-418, effective August 23, 1988 (20 U.S.C. 5001)) and authorized by Sections 46.40(b) and 46.42 of the Civil Administrative Code of Illinois (Ill. Rev. Stat. 1989, ch. 127, pars. 46.40(b) and 46.42).
- 5) A Complete Description of the Subjects and Issues Involved: These amendments serve to update the Job Training Partnership Act (JTPA) complaint procedures specified in Section 2610.110 and the nondiscrimination provisions applicable to JTPA found in Section 2610.120, in accordance with recommendations made by the U.S. Department of Labor.

- 6) Will these proposed amendments replace an emergency rule currently in effect? No.

- 7) Does this rulemaking contain an automatic repeal date? No.

- 8) Do these proposed amendments contain incorporations by reference? Yes, under Section 6.02(a) of the Illinois Administrative Procedure Act.

- 9) Are there any proposed amendments pending on this Part? Yes.

Section Numbers:	Proposed Action:	Illinois Register Citation:
2610.60	Amendment	October 5, 1990
2610.100	Amendment	14 Ill. Reg. 16117 August 17, 1990
2610.130	Amendment	14 Ill. Reg. 13074 August 17, 1990
2610.150	New Section	14 Ill. Reg. 13074 August 17, 1990
2610.Appendix A	Amendment	14 Ill. Reg. 13074 October 5, 1990
2610.Appendix B	New Section	14 Ill. Reg. 16117 October 5, 1990
Illustration A	New Section	14 Ill. Reg. 16117 October 5, 1990
Illustration B	New Section	14 Ill. Reg. 16117 October 5, 1990

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- 14 Ill. Reg. 16117  
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- 14 Ill. Reg. 16117  
October 5, 1990
- 10) Statement of Statewide Policy Objectives: This rulemaking does not create or expand a state mandate as defined in Section 3(b) of the State Mandates Act (Ill. Rev. Stat. 1989, ch. 85, par. 2203).
- 11) Time, Place, and Manner in which interested persons may comment on this proposed rulemaking: Interested persons may present their comments concerning this proposed rulemaking in writing within 45 days after this edition of the Illinois Register to the following:

Mr. John D. Taylor, Deputy Director  
Department of Commerce and Community Affairs  
Bureau of Program Administration  
620 East Adams Street, 5th floor  
Springfield, Illinois 62701  
(217) 782-6136

- 12) Initial Regulatory Flexibility Analysis:

- A) Date rule was submitted to the Business Assistance Office of the Department of Commerce and Community Affairs: March 5, 1991.

- B) Types of small businesses and small municipalities affected: There will be no direct effect on small municipalities. This rulemaking updates the complaint procedures and nondiscrimination provisions applicable to Job Training Partnership Act (JTPA) grantees. Thirteen of these grantees are not-for-profits and are therefore considered to be small businesses in accordance with the Illinois Administrative Procedure Act.

- C) Reporting, bookkeeping or other procedures required for compliance: All JTPA grantees must comply with the complaint procedures and nondiscrimination provisions as revised in this rulemaking.

- D) Types of professional skills necessary for compliance: Current JTPA grantee staff possess skills necessary for compliance.

The full text of the Proposed Amendments begins on the next page:



## DEPARTMENT OF COMMERCE AND COMMUNITY AFFAIRS

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## TITLE 56: LABOR AND EMPLOYMENT

## CHAPTER III: DEPARTMENT OF COMMERCE AND COMMUNITY AFFAIRS

## PART 2610

## TRAINING SERVICES FOR THE DISADVANTAGED

Section	Legislative Base
2610.10	Definitions
2610.20	Allocation of Funds
2610.30	Local Job Training Plan
2610.40	Plan Development and Approval
2610.50	Coordination Criteria
2610.60	Allowable Activities
2610.70	Eligibility Requirements
2610.80	Waivers of Limitation of Cost
2610.90	Performance Standards
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2610.110	Non-discrimination
2610.120	Reports and Recordkeeping Requirements
2610.130	Administrative Requirements
2610.140	Coordination Agreement
2610. Appendix A	Instructions: Worksheet for Adjusting Follow-Up
2610. Appendix B	Performance Measures for Non-Response Bias (Repealed)

**AUTHORITY:** Implementing Sections 46.41 and 46.49 of the Civil Administrative Code of Illinois (Ill. Rev. Stat. 1989, ch. 127, pars. 46.41 and 46.49), the Job Training Partnership Act (P.L. 97-300, effective October 13, 1982 (29 U.S.C. 1501), as amended by P.L. 97-404, effective December 31, 1982 (42 U.S.C. 602); P.L. 99-496, effective October 16, 1986 (29 U.S.C. 1501); P.L. 99-570, effective October 27, 1986 (21 U.S.C. 801); and P.L. 100-418, effective August 23, 1988 (20 U.S.C. 5001)) and authorized by Sections 46.40(b) and 46.42 of the Civil Administrative Code of Illinois (Ill. Rev. Stat. 1989, ch. 127, pars. 46.40(b) and 46.42).

**SOURCE:** Adopted at 8 Ill. Reg. 17819, effective September 14, 1984; amended at 9 Ill. Reg. 6119, effective April 19, 1985; amended at 9 Ill. Reg. 13072, effective August 12, 1985; amended at 10 Ill. Reg. 4816, effective March 11, 1986; emergency amendments at 10 Ill. Reg. 12780, effective July 10, 1986 for a maximum of 150 days; amended at 11 Ill. Reg. 2738, effective January 26, 1987; amended at 11 Ill. Reg. 11954, effective July 7, 1987; amended at 12 Ill. Reg. 4128, effective February 8, 1988; amended at 13 Ill. Reg. 14875, effective September 6, 1989; amended at 14 Ill. Reg. 1976, effective January 18, 1990; amended at 15 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_.

## Section 2610.110 Complaint Grievance-Procedures

Grievance procedures shall be established in accordance with Section 144 of

## DEPARTMENT OF COMMERCE AND COMMUNITY AFFAIRS

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the Act, and 20 CFR 629.52 - 629.53 ( 1983 revised as of April 1, 1990). These procedures will be referred to as "Complaint Procedures".

a) Grantees under the Act shall maintain a grievance complaint procedure for resolution of any grievance and or complaints about its programs and services from participants, subgrantees, subcontractors, and other interested persons.

b) Staff -- of -- grantees; -- subgrantees; -- participants; -- and -- other interested persons -- in a program operated under the JTPA -- may file a grievance or complaint: -- A grievance or complaint shall be filed -- within one year -- of -- the -- date -- the -- wrong -- or -- incident complained about occurred: -- The one year limitation shall not apply if the grievance concerns fraud or criminal activity: All persons who are program participants under the Job Training Partnership Act (JTPA), all contractors and grantees, and subrecipients thereof, of JTPA funds, and all interested persons shall be afforded the opportunity to resolve, by means of an administrative process, any alleged violation of the Act, federal regulations promulgated pursuant thereto, any grant, contract or other agreement entered into pursuant to the Act. Various types of complaints may be filed.

1) If a grievance complaint concerns civil rights discrimination on the basis of race, color, national origin, age, or sex, religion, political affiliation or belief, or, as appropriate, citizenship, the complaint may be filed directly with the Secretary of the U.S. Department of Labor (DOL), Directorate of Civil Rights (DCR), under the appropriate equal opportunity and nondiscrimination requirements applicable to the Act. Complaints must be filed within one hundred eighty (180) days of the date of alleged discrimination. In complaints of this nature, no entity shall attempt to prevent or dissuade the complainant from filing such a complaint and no attempt shall be made to informally resolve the complaint (29 CFR 31.7, revised as of July 1, 1989). Civil Rights Act of 1964 (42 U.S.C. 2000e; 2000e-7; 2000e-8; 2000e-9; 2000e-10; 2000e-11; 2000e-12; 2000e-13; 2000e-14; 2000e-15; 2000e-16; 2000e-17; 2000e-18; 2000e-19; 2000e-20; 2000e-21; 2000e-22; 2000e-23; 2000e-24; 2000e-25; 2000e-26; 2000e-27; 2000e-28; 2000e-29; 2000e-30; 2000e-31; 2000e-32; 2000e-33; 2000e-34; 2000e-35; 2000e-36; 2000e-37; 2000e-38; 2000e-39; 2000e-40; 2000e-41; 2000e-42; 2000e-43; 2000e-44; 2000e-45; 2000e-46; 2000e-47; 2000e-48; 2000e-49; 2000e-50; 2000e-51; 2000e-52; 2000e-53; 2000e-54; 2000e-55; 2000e-56; 2000e-57; 2000e-58; 2000e-59; 2000e-60; 2000e-61; 2000e-62; 2000e-63; 2000e-64; 2000e-65; 2000e-66; 2000e-67; 2000e-68; 2000e-69; 2000e-70; 2000e-71; 2000e-72; 2000e-73; 2000e-74; 2000e-75; 2000e-76; 2000e-77; 2000e-78; 2000e-79; 2000e-80; 2000e-81; 2000e-82; 2000e-83; 2000e-84; 2000e-85; 2000e-86; 2000e-87; 2000e-88; 2000e-89; 2000e-90; 2000e-91; 2000e-92; 2000e-93; 2000e-94; 2000e-95; 2000e-96; 2000e-97; 2000e-98; 2000e-99; 2000e-100; 2000e-101; 2000e-102; 2000e-103; 2000e-104; 2000e-105; 2000e-106; 2000e-107; 2000e-108; 2000e-109; 2000e-110; 2000e-111; 2000e-112; 2000e-113; 2000e-114; 2000e-115; 2000e-116; 2000e-117; 2000e-118; 2000e-119; 2000e-120; 2000e-121; 2000e-122; 2000e-123; 2000e-124; 2000e-125; 2000e-126; 2000e-127; 2000e-128; 2000e-129; 2000e-130; 2000e-131; 2000e-132; 2000e-133; 2000e-134; 2000e-135; 2000e-136; 2000e-137; 2000e-138; 2000e-139; 2000e-140; 2000e-141; 2000e-142; 2000e-143; 2000e-144; 2000e-145; 2000e-146; 2000e-147; 2000e-148; 2000e-149; 2000e-150; 2000e-151; 2000e-152; 2000e-153; 2000e-154; 2000e-155; 2000e-156; 2000e-157; 2000e-158; 2000e-159; 2000e-160; 2000e-161; 2000e-162; 2000e-163; 2000e-164; 2000e-165; 2000e-166; 2000e-167; 2000e-168; 2000e-169; 2000e-170; 2000e-171; 2000e-172; 2000e-173; 2000e-174; 2000e-175; 2000e-176; 2000e-177; 2000e-178; 2000e-179; 2000e-180; 2000e-181; 2000e-182; 2000e-183; 2000e-184; 2000e-185; 2000e-186; 2000e-187; 2000e-188; 2000e-189; 2000e-190; 2000e-191; 2000e-192; 2000e-193; 2000e-194; 2000e-195; 2000e-196; 2000e-197; 2000e-198; 2000e-199; 2000e-200; 2000e-201; 2000e-202; 2000e-203; 2000e-204; 2000e-205; 2000e-206; 2000e-207; 2000e-208; 2000e-209; 2000e-210; 2000e-211; 2000e-212; 2000e-213; 2000e-214; 2000e-215; 2000e-216; 2000e-217; 2000e-218; 2000e-219; 2000e-220; 2000e-221; 2000e-222; 2000e-223; 2000e-224; 2000e-225; 2000e-226; 2000e-227; 2000e-228; 2000e-229; 2000e-230; 2000e-231; 2000e-232; 2000e-233; 2000e-234; 2000e-235; 2000e-236; 2000e-237; 2000e-238; 2000e-239; 2000e-240; 2000e-241; 2000e-242; 2000e-243; 2000e-244; 2000e-245; 2000e-246; 2000e-247; 2000e-248; 2000e-249; 2000e-250; 2000e-251; 2000e-252; 2000e-253; 2000e-254; 2000e-255; 2000e-256; 2000e-257; 2000e-258; 2000e-259; 2000e-260; 2000e-261; 2000e-262; 2000e-263; 2000e-264; 2000e-265; 2000e-266; 2000e-267; 2000e-268; 2000e-269; 2000e-270; 2000e-271; 2000e-272; 2000e-273; 2000e-274; 2000e-275; 2000e-276; 2000e-277; 2000e-278; 2000e-279; 2000e-280; 2000e-281; 2000e-282; 2000e-283; 2000e-284; 2000e-285; 2000e-286; 2000e-287; 2000e-288; 2000e-289; 2000e-290; 2000e-291; 2000e-292; 2000e-293; 2000e-294; 2000e-295; 2000e-296; 2000e-297; 2000e-298; 2000e-299; 2000e-300; 2000e-301; 2000e-302; 2000e-303; 2000e-304; 2000e-305; 2000e-306; 2000e-307; 2000e-308; 2000e-309; 2000e-310; 2000e-311; 2000e-312; 2000e-313; 2000e-314; 2000e-315; 2000e-316; 2000e-317; 2000e-318; 2000e-319; 2000e-320; 2000e-321; 2000e-322; 2000e-323; 2000e-324; 2000e-325; 2000e-326; 2000e-327; 2000e-328; 2000e-329; 2000e-330; 2000e-331; 2000e-332; 2000e-333; 2000e-334; 2000e-335; 2000e-336; 2000e-337; 2000e-338; 2000e-339; 2000e-340; 2000e-341; 2000e-342; 2000e-343; 2000e-344; 2000e-345; 2000e-346; 2000e-347; 2000e-348; 2000e-349; 2000e-350; 2000e-351; 2000e-352; 2000e-353; 2000e-354; 2000e-355; 2000e-356; 2000e-357; 2000e-358; 2000e-359; 2000e-360; 2000e-361; 2000e-362; 2000e-363; 2000e-364; 2000e-365; 2000e-366; 2000e-367; 2000e-368; 2000e-369; 2000e-370; 2000e-371; 2000e-372; 2000e-373; 2000e-374; 2000e-375; 2000e-376; 2000e-377; 2000e-378; 2000e-379; 2000e-380; 2000e-381; 2000e-382; 2000e-383; 2000e-384; 2000e-385; 2000e-386; 2000e-387; 2000e-388; 2000e-389; 2000e-390; 2000e-391; 2000e-392; 2000e-393; 2000e-394; 2000e-395; 2000e-396; 2000e-397; 2000e-398; 2000e-399; 2000e-400; 2000e-401; 2000e-402; 2000e-403; 2000e-404; 2000e-405; 2000e-406; 2000e-407; 2000e-408; 2000e-409; 2000e-410; 2000e-411; 2000e-412; 2000e-413; 2000e-414; 2000e-415; 2000e-416; 2000e-417; 2000e-418; 2000e-419; 2000e-420; 2000e-421; 2000e-422; 2000e-423; 2000e-424; 2000e-425; 2000e-426; 2000e-427; 2000e-428; 2000e-429; 2000e-430; 2000e-431; 2000e-432; 2000e-433; 2000e-434; 2000e-435; 2000e-436; 2000e-437; 2000e-438; 2000e-439; 2000e-440; 2000e-441; 2000e-442; 2000e-443; 2000e-444; 2000e-445; 2000e-446; 2000e-447; 2000e-448; 2000e-449; 2000e-450; 2000e-451; 2000e-452; 2000e-453; 2000e-454; 2000e-455; 2000e-456; 2000e-457; 2000e-458; 2000e-459; 2000e-460; 2000e-461; 2000e-462; 2000e-463; 2000e-464; 2000e-465; 2000e-466; 2000e-467; 2000e-468; 2000e-469; 2000e-470; 2000e-471; 2000e-472; 2000e-473; 2000e-474; 2000e-475; 2000e-476; 2000e-477; 2000e-478; 2000e-479; 2000e-480; 2000e-481; 2000e-482; 2000e-483; 2000e-484; 2000e-485; 2000e-486; 2000e-487; 2000e-488; 2000e-489; 2000e-490; 2000e-491; 2000e-492; 2000e-493; 2000e-494; 2000e-495; 2000e-496; 2000e-497; 2000e-498; 2000e-499; 2000e-500; 2000e-501; 2000e-502; 2000e-503; 2000e-504; 2000e-505; 2000e-506; 2000e-507; 2000e-508; 2000e-509; 2000e-510; 2000e-511; 2000e-512; 2000e-513; 2000e-514; 2000e-515; 2000e-516; 2000e-517; 2000e-518; 2000e-519; 2000e-520; 2000e-521; 2000e-522; 2000e-523; 2000e-524; 2000e-525; 2000e-526; 2000e-527; 2000e-528; 2000e-529; 2000e-530; 2000e-531; 2000e-532; 2000e-533; 2000e-534; 2000e-535; 2000e-536; 2000e-537; 2000e-538; 2000e-539; 2000e-540; 2000e-541; 2000e-542; 2000e-543; 2000e-544; 2000e-545; 2000e-546; 2000e-547; 2000e-548; 2000e-549; 2000e-550; 2000e-551; 2000e-552; 2000e-553; 2000e-554; 2000e-555; 2000e-556; 2000e-557; 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2000e-649; 2000e-650; 2000e-651; 2000e-652; 2000e-653; 2000e-654; 2000e-655; 2000e-656; 2000e-657; 2000e-658; 2000e-659; 2000e-660; 2000e-661; 2000e-662; 2000e-663; 2000e-664; 2000e-665; 2000e-666; 2000e-667; 2000e-668; 2000e-669; 2000e-670; 2000e-671; 2000e-672; 2000e-673; 2000e-674; 2000e-675; 2000e-676; 2000e-677; 2000e-678; 2000e-679; 2000e-680; 2000e-681; 2000e-682; 2000e-683; 2000e-684; 2000e-685; 2000e-686; 2000e-687; 2000e-688; 2000e-689; 2000e-690; 2000e-691; 2000e-692; 2000e-693; 2000e-694; 2000e-695; 2000e-696; 2000e-697; 2000e-698; 2000e-699; 2000e-700; 2000e-701; 2000e-702; 2000e-703; 2000e-704; 2000e-705; 2000e-706; 2000e-707; 2000e-708; 2000e-709; 2000e-710; 2000e-711; 2000e-712; 2000e-713; 2000e-714; 2000e-715; 2000e-716; 2000e-717; 2000e-718; 2000e-719; 2000e-720; 2000e-721; 2000e-722; 2000e-723; 2000e-724; 2000e-725; 2000e-726; 2000e-727; 2000e-728; 2000e-729; 2000e-730; 2000e-731; 2000e-732; 2000e-733; 2000e-734; 2000e-735; 2000e-736; 2000e-737; 2000e-738; 2000e-739; 2000e-740; 2000e-741; 2000e-742; 2000e-743; 2000e-744; 2000e-745; 2000e-746; 2000e-747; 2000e-748; 2000e-749; 2000e-750; 2000e-751; 2000e-752; 2000e-753; 2000e-754; 2000e-755; 2000e-756; 2000e-757; 2000e-758; 2000e-759; 2000e-760; 2000e-761; 2000e-762; 2000e-763; 2000e-764; 2000e-765; 2000e-766; 2000e-767; 2000e-768; 2000e-769; 2000e-770; 2000e-771; 2000e-772; 2000e-773; 2000e-774; 2000e-775; 2000e-776; 2000e-777; 2000e-778; 2000e-779; 2000e-780; 2000e-781; 2000e-782; 2000e-783; 2000e-784; 2000e-785; 2000e-786; 2000e-787; 2000e-788; 2000e-789; 2000e-790; 2000e-791; 2000e-792; 2000e-793; 2000e-794; 2000e-795; 2000e-796; 2000e-797; 2000e-798; 2000e-799; 2000e-800; 2000e-801; 2000e-802; 2000e-803; 2000e-804; 2000e-805; 2000e-806; 2000e-807; 2000e-808; 2000e-809; 2000e-810; 2000e-811; 2000e-812; 2000e-813; 2000e-814; 2000e-815; 2000e-816; 2000e-817; 2000e-818; 2000e-819; 2000e-820; 2000e-821; 2000e-822; 2000e-823; 2000e-824; 2000e-825; 2000e-826; 2000e-827; 2000e-828; 2000e-829; 2000e-830; 2000e-831; 2000e-832; 2000e-833; 2000e-834; 2000e-835; 2000e-836; 2000e-837; 2000e-838; 2000e-839; 2000e-840; 2000e-841; 2000e-842; 2000e-843; 2000e-844; 2000e-845; 2000e-846; 2000e-847; 2000e-848; 2000e-849; 2000e-850; 2000e-851; 2000e-852; 2000e-853; 2000e-854; 2000e-855; 2000e-856; 2000e-857; 2000e-858; 2000e-859; 2000e-860; 2000e-861; 2000e-862; 2000e-863; 2000e-864; 2000e-865; 2000e-866; 2000e-867; 2000e-868; 2000e-869; 2000e-870; 2000e-871; 2000e-872; 2000e-873; 2000e-874; 2000e-875; 2000e-876; 2000e-877; 2000e-878; 2000e-879; 2000e-880; 2000e-881; 2000e-882; 2000e-883; 2000e-884; 2000e-885; 2000e-886; 2000e-887; 2000e-888; 2000e-889; 2000e-890; 2000e-891; 2000e-892; 2000e-893; 2000e-894; 2000e-895; 2000e-896; 2000e-897; 2000e-898; 2000e-899; 2000e-900; 2000e-901; 2000e-902; 2000e-903; 2000e-904; 2000e-905; 2000e-906; 2000e-907; 2000e-908; 2000e-909; 2000e-910; 2000e-911; 2000e-912; 2000e-913; 2000e-914; 2000e-915; 2000e-916; 2000e-917; 2000e-918; 2000e-



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done-so-no-later-than-180-days-from-the-date-the-incident occurred.

- 2) If, however, a complaint alleges discrimination on the basis of handicap, the complaint shall be filed with the Department. Complaints alleging discrimination on the ground of handicap in violation of Section 167 of the Act will be filed and processed under the procedures outlined in the DOL's current regulations implementing Section 504 of the Rehabilitation Act of 1973 at 29 CFR 32.45 (revised as of July 1, 1989). Complaints filed with the Department must be filed no later than one hundred eighty (180) days from the date of alleged discrimination. If the complaint is not ameliorated to the complainant's satisfaction under the state's complaint procedure within sixty (60) days from the date of filing, the complainant or his or her representative, may request to have the complaint independently reviewed through an independent state review. In complaints of this nature, no entity shall attempt to prevent or dissuade the complainant from filing such a complaint.

- 3) Complaints of any other nature, not related to civil rights discrimination or handicap discrimination, must be filed within one year of the date of the alleged incident (see Section 144(a) of the Act). However, this one-year limitation does not apply if the complaint concerns fraud or criminal activity, which must be reported directly and immediately to the DOL (20 CFR 629.55, revised as of April 1, 1990).

- c) Time limits are measured in calendar weeks (seven consecutive days). A time limit begins when the person responsible for a specific step receives the necessary information regarding the complaint. Time limits have been established to ensure both expeditious resolution of complaints, and to provide the necessary time for adequate review of all appropriate material. Should an aggrieved person(s) or entity neglect to adhere to the time requirements set throughout this procedure, the aggrieved party(ies) are considered to have abandoned their complaint and the matter will be considered resolved. In turn, failure by management to render a decision within the allotted time at any step constitutes denial and the complainant may proceed to the next step.

- d) Complainants shall not be punished or penalized for the filing of a complaint under JTPA. The Department and the Department of Labor shall not disclose the identity of any person who has furnished information or assistance in the investigation of a

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JTPA violation unless absolutely necessary, nor may any person or organization or agency discharge or in any way discriminate or retaliate against any person for the filing of a complaint or the rendering of testimony in any proceeding or investigation (Section 164(g) of the Act).

- e) All persons who are program participants under JTPA, all contractors and grantees, and subrecipients thereof, of JTPA funds, and all interested persons shall be afforded the opportunity to resolve by means of administrative process any alleged violation of the Act, federal regulations promulgated pursuant thereto, any grant, contract or other agreement entered into pursuant to the Act. Steps in the grievance complaint procedure shall be:

- 1) Filing Complaint - Filing-a-Complaint---Staff-of-grantees; subgrantees Applicants, participants, subgrantees, subcontractors, staff and other interested persons hereto referred to as the complainant, shall notify the Grant Recipient's and/or Administrative Entity's Equal Employment Opportunity Officer/Affirmative---Action---(EEO/AA) (EO Officer) when filing a complaint. The notification shall be either-spoken-or-written. Complainants shall be advised of their right to have the complaint resolved, either informally or through a formal written complaint. The EO Officer of the Grant Recipient and/or Administrative Entity's-EEO/AA-Officers shall assist the complainant staff of---grantees;---subgrantees;---participants;---and---other interested persons when a formal written complaint is filed.

- 2) Informal Resolution - Nothing in the state or federal statute or regulations precludes the use of informal mechanisms for the resolution of all complaints and perspective complaints under JTPA. Complainants Staff-of-grantees; subgrantees; participants; and other-interested persons shall be encouraged, but not required, to informally resolve complaints. Complainants-shall-have-the-right-to-request-a-formal-hearing-after-discussion-of-the-complaint-and-it-is-felt-by-the-complainant-that-the-complaint-cannot-be-resolved.

- A) The complainant should first notify the proper authority at the local level of the alleged violation.

- B) Prior to the commencement of investigation, informal conference, or hearing activities conducted by the



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SDA/SSA, attempts should be made to resolve a complaint with the involved supervisor, instructor, and employer's/training agency's complaint procedures. A complaint will not be considered formally lodged with the SDA/SSA until these mediation efforts have been exhausted. After all other efforts have been exhausted, a complaint may be filed by submitting the State of Illinois Job Training Partnership Act Complaint Form to the EO Officer. The complaint form shall include the following information:

- i) grantee's name and address;
- ii) complainant's name, address, work and home phone numbers;
- iii) JTPA office (service provider);
- iv) status of complainant (i.e., employee, applicant, participant, other);
- v) name and telephone number of organization represented;
- vi) respondent's name, address, and telephone number;
- vii) status of respondent (i.e., service provider, SDA administrative entity, SDA grant recipient, private employer, PIC);
- viii) nature of complaint alleged (i.e., sexual harassment, handicap, JTPA law, JTPA regulation, JTPA related, non-JTPA related(specify), race, color, sex, age, religion, national origin, political affiliation or belief, citizenship);
- ix) type of program (i.e., IB, IIA, IIB, III, other (specify));
- x) whether or not a charge has been filed with: the Illinois Department of Rehabilitation Services, the Illinois Department of Human Rights, the U.S. Department of Labor/Directorate of Civil Rights, and/or the U.S. Equal Employment Opportunity Commission;

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- xi) date(s), time(s) and place(s) alleged violation occurred;
- xii) date and manner in which the complaint was presented to immediate supervisor (oral/written);
- xiii) dated signature of immediate supervisor acknowledging discussion of complaint;
- xiv) whether or not an attempt has been made to resolve the complaint;
- xv) facts concerning alleged complaint including: pertinent dates; names and titles of those involved; details of how other person(s) were treated differently from complainant; written documentation/material to support complaint; provisions of the Act, regulations, grant, contract, or other agreements under the Act believed to have been violated;
- xvi) remedy sought by complainant; and
- xvii) dated signatures of complainant, JTPA EO Officer, and Executive Director.

C) Upon receipt of a complaint, the EO Officer will log, investigate and review the allegation prior to an informal conference so that an appropriate resolution can take place at the time of the meeting.

D) This conference shall be held within five (5) days from the date of receipt of the complaint. If no resolution occurs at the informal conference, the EO Officer will forward to the complainant and other involved parties, a report outlining his/her decision on the issues within five (5) days of the informal conference. The complainant has five (5) days, following receipt of the findings of the informal conference in which to file a written request for a formal hearing.

3) Request for a Hearing - Upon receipt of the written request, an impartial Hearing Officer shall be appointed to hear the complaint. The Hearing Officer appointed shall conduct the hearing on the issue(s) and render an independent decision. The Hearing Officer shall be selected on the basis that current oversight responsibility



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does not include that of the Service Delivery Area (SDA)/Substate Area (SSA). The EEO/AA Officer Hearing Officer shall schedule a hearing to convene within thirty (30) calendar days of receipt of a written complaint, if the complaint cannot be informally resolved. Written notification shall be sent by the Hearing Officer to all parties stating the date, time and place of the formal hearing and the issues to be heard. A follow-up notice shall be sent to all parties five (5) days prior to the date the hearing is scheduled to confirm the appointment.

## 4) Conduct of Hearing

A) Complainants and respondents Staff--of--grantees; subgrantees; participants; and other--interested persons shall make every effort possible to be present at the hearing. However, if they are unable to be present, a forty-eight (48) hour prior written notice must be given to the Hearing Officer. In the event circumstances arise prior to the hearing which, in the opinion of the Hearing Officer, are such as to be beyond the reasonable control of the complainant or respondent and prevent the complainant's their attendance at the hearing, the Hearing Officer will shall reschedule the proceedings. Examples of factors beyond reasonable control of the complainant may include but shall are not be limited to:

- i) Serious illness of the complainant or respondent or member of the complainant's their immediate family.
- ii) Hazardous weather hindering restricting travel to the hearing site.
- B) If the Hearing Officer determines that the complainant's or respondent's failure to attend the hearing is not beyond the their reasonable control, of the complainant, the hearing will shall be held in the complainant's their absence. The rules of evidence for contested cases, set forth in Section 12 of "the Illinois Administrative Procedure Act" (Ill. Rev. Stat. 1985 1989, ch. 127, par. 1012), shall be followed in connection with each hearing. All parties involved shall have the right to be accompanied by an attorney or other duly authorized representative; and the right of presenting any witness(es) or to introduce any evidence desired.

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subject to the approval of the Hearing Officer. The complainant shall be permitted access to SDA/SSA files which would be germane to the complainant's allegations. Complainants may be questioned any of the parties or witnesses at the hearing and may also be questioned any of the parties or witnesses at the hearing.

- 5) Hearing Officer's Decision - Complainants shall have 10 days to file an appeal--if they are not satisfied with the decision of the EEO/AA officer; the Department shall then have 30 days after receipt of the written complaint to schedule a hearing and render a decision--Complainants shall be advised of their right to appeal by the EEO/AA Officer--if the complainant does not appeal to the Department, the decision of the hearing officer shall be final. A written decision shall be prepared and distributed by the Hearing Officer to the complainant and all parties who attended the hearing within sixty (60) days of the filing of the complaint. The conclusions or opinions of the decision shall be based upon facts and evidence presented during the hearing. The decision of the Hearing Officer shall contain a statement of the issues; synopsis of facts; a statement of reasons for the decision; remedies; and, an aggrieved party's right to appeal the decision. All correspondence shall be mailed certified with a return receipt requested.

## 6) Appeal of the Decision

## A) Appeal of Decision When Complaint is Filed at Local Level

- i) If an aggrieved party is not satisfied with the decision of the Hearing Officer, or the decision is not received within sixty (60) days of filing the complaint, an aggrieved party may request a Department review of the complaint. Appeals shall be addressed to the Department's Equal Employment Opportunity/Affirmative Action (EEO/AA) Office. Upon submittal to the Department all supporting documentation must be attached to all appeals. An appeal shall be filed within ten (10) days of receipt of the adverse decision or ten (10) days from the date on which the decision should have been received from the Hearing Officer. Appeals must be submitted on the State of Illinois Job Training Partnership Act Appeal Form and shall contain



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the following information: complainant's name and address; respondent's name and address; nature of complaint; remedy sought; and answers to questions which address the following areas: informal resolution, request for hearing, conduct of hearing, hearing officer's decision, appeal of decision, dated signature of aggrieved party.

ii) If an aggrieved party does not appeal to the Department or the appeal is not timely made, the decision of the Hearing Officer shall be considered final. The Department's Legal Office shall be responsible for determining whether the complaint being appealed is a complaint filed pursuant to Section 144(a) of the Act or is an appeal based on civil rights discrimination. If the Legal Office determines that the complaint being appealed concerns discrimination on the basis of race, color, national origin, age, sex, religion, political affiliation or belief, or, as appropriate, citizenship, the aggrieved parties shall be advised to file their appeal directly with the Directorate of Civil Rights of the DOL (200 Constitution Avenue, N.W., Room N4123, Washington, D.C. 20210) under the appropriate equal opportunity and nondiscrimination requirements applicable to the Act. The Department shall conduct a review of all other types of complaints and issue a decision within thirty (30) days from the date of receipt of the appeal request. The decision rendered by the Department's Legal Office (on behalf of the Governor) shall be final.

iii) If the Department fails to issue a decision within thirty (30) days from the date of receipt of the appeal, an aggrieved party may request a determination from the Secretary of the U.S. Department of Labor (Secretary), where reasonable cause exists to believe that the Act or regulations have been violated. The request for a determination shall be submitted to the Secretary within ten (10) days of the date on which the Department's decision should have been issued. In accordance with 20 CFR 629.52(d)(2) (revised as of April 1, 1990), the Secretary shall act within ninety (90) days

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and, as appropriate, direct the Department to take further action pursuant to state and local procedures, where there is reasonable cause to believe the Act or regulations have been violated.

B) Appeal of Decision When Complaint is Initially Filed at State Level

i) If an aggrieved party is not satisfied with the decision of the Hearing Officer, or the decision is not received within sixty (60) days of filing the complaint, an aggrieved party may request to have the complaint independently reviewed. The Department shall provide for the Independent State Review by an Independent Review Officer. If an aggrieved party files an appeal, all supporting documentation must be attached to the appeal.

ii) The appeal shall be filed within ten (10) days of receipt of the adverse decision or ten (10) days from the date on which the decision should have been received from the Hearing Officer. If an aggrieved party does not appeal under the independent review process or the appeal is not timely made, the decision of the Hearing Officer (on behalf of the Governor) shall be final. A decision based on the independent state review shall be issued within thirty (30) days from the date of receipt of the complaint appeal request. The decision rendered by the Independent Review Officer (on behalf of the Governor) shall be final.

iii) If the Independent Review Officer fails to issue a decision within thirty (30) days from the date of receipt of the appeal, an aggrieved party may request a determination from the Secretary, as to where there is reasonable cause to believe that the Act or regulations have been violated. The request for a determination shall be submitted to the Secretary within ten (10) days of the date on which the Independent Review Officer's decision should have been issued. In accordance with 20 CFR 629.52(d)(2) (revised as of April 1, 1990) of the JTPA regulations, the Secretary shall act within ninety (90) days and, as



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appropriate, direct the Department to take further action pursuant to state and local procedures, where there is reasonable cause to believe the Act or regulations have been violated.

- d) Complainants shall not be punished or penalized for the filing of a grievance under JTPA:--The Department and the Department of Labor shall not disclose the identity of any person who has furnished information or assistance in the investigation of a JTPA violation unless absolutely necessary; nor may any person or organization or agency discharge or in any way discriminate or retaliate against any person for the filing of a complaint or the rendering of testimony in any proceeding or investigation.

(Source: Amended at 15 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)

Section 2610.120 Non-discrimination

- a) Equal Employment Opportunity - Grantees shall comply with the equal employment provisions of Section 167 of the Act, and 20 CFR 629.3 (revised as of April 1, 1990) (1983).
- b) Discrimination - Grantees shall refrain from unlawful discrimination in employment and shall undertake affirmative action to assure equality of employment opportunity and eliminate the effects of past discrimination in accordance with the Illinois Human Rights Act (Ill. Rev. Stat. 1983 1989, ch. 68, pars. 1-101 et seq.). The following laws shall be complied with concerning discrimination:

- 1) Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d - 2000d-7);
- 2) The Age Discrimination Act of 1975 (42 U.S.C. 6102);
- 3) Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. 794);
- 4) Title IX of the Education Amendments of 1972 (20 U.S.C. 1681 et seq.);
- 5) Section 167 of the Job Training Partnership Act of 1983 (29 U.S.C. 1501);
- 6) U.S. DOL Regulations at 29 CFR 31 (revised as of July 1, 1989) and 29 CFR 32 (revised as of July 1, 1989);
- 7) 20 CFR 629.3 (revised as of April 1, 1990);

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- 8) The Illinois Human Rights Act ( Ill. Rev. Stat. 1989, ch. 68, pars. 1-101 et seq.); and
- 9) The Civil Rights Restoration Act of 1987 (P.L. 100-259, effective March 22, 1988).

- c) Civil Rights - JTPA grantees are responsible for acquiring and forwarding a quarterly report on civil rights complaints to the Department. The Department is responsible for forwarding a summary report to the Illinois Job Training Coordinating Council, or a committee of the Council assigned the responsibility of performing the duties specified in Section 4 of the Illinois Job Training Coordinating Council Act (Ill. Rev. Stat. 1989, ch. 48, par. 2104).

(Source: Amended at 15 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)



## DEPARTMENT OF CONSERVATION

## NOTICE OF PROPOSED AMENDMENTS

1) HEADING OF THE PART: Illinois Salmon Stamp Contest Procedures

2) CODE CITATION: 17 Ill. Adm. Code 2550

3) SECTION NUMBERS: PROPOSED ACTION:

2550.10

Amendments

2550.15

New Section

4) STATUTORY AUTHORITY: Implementing Sections 1.2, 1.3p, 1.5, 5.1a and 5.21 of the Fish Code of 1971 (Ill. Rev. Stat. 1989, ch. 56, pars. 1.2, 1.3p, 1.5, 5.1a and 5.21) and authorized by Section 5 of The Illinois Purchasing Act (Ill. Rev. Stat. 1989, ch. 127, par. 132.5).

5) A COMPLETE DESCRIPTION OF THE SUBJECTS AND ISSUES INVOLVED:  
Due to declining interest in the annual Illinois Salmon Stamp Contest, the Department has determined that the contest will only be held in any year in which twenty interested artists, the Director of the Illinois Department of Conservation, the Governor of the State of Illinois or any member of the Illinois Legislature requests such a contest.

6) WILL THIS PROPOSED RULE REPLACE AN EMERGENCY RULE CURRENTLY IN EFFECT? No

7) DOES THIS RULEMAKING CONTAIN AN AUTOMATIC REPEAL DATE? No

8) DOES THIS PROPOSED RULE CONTAIN INCORPORATIONS BY REFERENCE? No

9) ARE THERE ANY OTHER PROPOSED AMENDMENTS PENDING ON THIS PART? No

10) STATEMENT OF STATEWIDE POLICY OBJECTIVES: This rule has no impact on local governments.

11) TIME, PLACE AND MANNER IN WHICH INTERESTED PERSONS MAY COMMENT ON THIS PROPOSED RULEMAKING: Comments on the proposed rule may be submitted in writing for a period of 30 days following publication of this notice to:

Jack Price  
Department of Conservation  
524 S. Second Street, Room 485  
Springfield, IL 62701-1787

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12) INITIAL REGULATORY FLEXIBILITY ANALYSIS: This rule has no impact on small businesses or municipalities.

THE FULL TEXT OF THE PROPOSED AMENDMENTS BEGINS ON THE NEXT PAGE:



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TITLE 17: CONSERVATION  
CHAPTER 1: DEPARTMENT OF CONSERVATION  
SUBCHAPTER f: ADMINISTRATIVE SERVICES

## PART 2550

## ILLINOIS SALMON STAMP CONTEST PROCEDURES

Section	Objective
2550.10	Prerequisite to Contest
2550.15	General Procedures and Definitions
2550.20	Contest Dates, Deadlines and Awards
2550.30	Contest Eligibility
2550.40	Technical Requirements and Scoring Criteria
2550.50	Subject Matter Restrictions
2550.60	Submission Procedures for Entry
2550.70	Property Insurance for Entries
2550.80	Display and Return of Entries
2550.90	Failure to Comply With Contest Rules and Procedures
2550.100	Illinois Salmon Stamp Contest Purchase-Award Agreement
EXHIBIT A	

AUTHORITY: Implementing Sections 1.2, 1.3p, 1.5, 5.1a and 5.21 of the Fish Code of 1971 (Ill. Rev. Stat. 1989, ch. 56, pars. 1.2, 1.3p, 1.5, 5.1a and 5.21) and authorized by Section 5 of The Illinois Purchasing Act (Ill. Rev. Stat. 1989, ch. 127, par. 132.5).

SOURCE: Adopted at 9 Ill. Reg. 8138, effective May 21, 1985; amended at 15 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_.

## Section 2550.10 Objective

The purpose of the ~~annual~~-Illinois Salmon Stamp Contest is to provide an opportunity for open competition in the selection of a design for the State Salmon Stamp.

(Source: Amended at 15 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_.)

## Section 2550.15 Prerequisite to Contest

- a) A contest will be held in any year in which twenty (20) interested artists, the Director of the Illinois Department of Conservation, the Governor of the State of Illinois or any member of the Illinois Legislature

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requests such a contest.

b)

If no such request is received by the Division of Resource Marketing, Illinois Department of Conservation, 524 S. Second Street, Springfield, IL 62701 on or before the 1st day of April of the year preceding the year for which the stamp will be issued, the Department of Conservation shall not hold a Salmon Stamp Contest for that year.

(Source: Added at 15 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_.)



- 1) The Heading of the Part: Organic Material Emission Standards and Limitations
- 2) Code Citation: 35 Ill. Adm. Code 215
- 3) Section Number: Proposed Action:  
215.100 amend  
215.581 amend
- 4) Statutory Authority: Illinois Environmental Protection Act (Ill. Rev. Stat. 1989, ch. 111 $\frac{1}{2}$ , pars. 1010, 1027, and 1028.2.)
- 5) A Complete Description of the Subjects and Issues Involved:  
The proposed amendments to Part 215 are part of two rulemakings (dockets R91-7 & R91-8) designed to control organic material emissions, in an effort to reduce the formation of the pollutant ozone in the atmosphere. The proposed rules seek to correct deficiencies in Illinois' state implementation plan (SIP) for ozone in the Chicago and Metro-East areas, and require the implementation of reasonably available control technology (RACT) for certain sources of volatile organic material (VOM). These rulemakings are required by the federal Clean Air Act Amendments of 1990. The Illinois Environmental Protection Agency has certified that the rulemakings are "required rules" pursuant to Section 28.2 of the Environmental Protection Act (Ill. Rev. Stat. 1989, ch. 111 1/2, par. 1028.2, as amended by P.A. 86-1409, effective January 1, 1991), and the Board has accepted that certification. Please note that both R91-7 and R91-8 propose identical amendments to Part 215. Thus, this first notice publication of the amendments is for both dockets.
- 6) Will this proposed rule replace an emergency rule currently in effect? No.
- 7) Does this rulemaking contain an automatic repeal date?  
Yes ☒ No ☐  
If "yes," please specify the date: \_\_\_\_\_
- 8) Does this proposed (amendment, repealer) contain incorporations by reference? Yes.

9) Are there any other amendments pending on this Part? Yes.

Section Number:	Proposed Action:	Ill. Reg. Citation:
215.102	amended	14 Ill. Reg. 8877 (June 8, 1990)
215.105	amended	14 Ill. Reg. 8877 (June 8, 1990)
215.108	new section	14 Ill. Reg. 8877 (June 8, 1990)
215.123	amended	15 Ill. Reg. 768 (January 25, 1991)
215.480	amended	14 Ill. Reg. 8877 (June 8, 1990)
214.481	amended	14 Ill. Reg. 8877 (June 8, 1990)
215.482	amended	14 Ill. Reg. 8877 (June 8, 1990)
215.483	amended	14 Ill. Reg. 8877 (June 8, 1990)
215.484	amended	14 Ill. Reg. 8877 (June 8, 1990)
215.485	amended	14 Ill. Reg. 8877 (June 8, 1990)
215.486	amended	14 Ill. Reg. 8877 (June 8, 1990)
215.487	amended	14 Ill. Reg. 8877 (June 8, 1990)
215.488	amended	14 Ill. Reg. 8877 (June 8, 1990)
215.489	renum., amended	14 Ill. Reg. 8877 (June 8, 1990)
215.490	renum., amended	14 Ill. Reg. 8877 (June 8, 1990)

10) Statement of Statewide Policy Objective (if applicable)?

These proposed rules do not create or enlarge a state mandate as defined in Section 3(b) of the State Mandates Act (Ill. Rev. Stat. 1989, ch. 85, par. 2203(b)).

11) Time, Place and Manner in which interested persons may comment on this proposed rulemaking:

Send written comments concerning this rulemaking within 45



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days of publication in the Illinois Register to Dorothy M. Gunn, Clerk, Illinois Pollution Control Board, 100 West Randolph Street, Suite 11-500, Chicago, IL 60601. Please include the docket number of the rulemakings (R91-7 & R91-8) on all comments. Please send copies of all comments to:

Bonnie Eynon  
Dept. of Energy and  
Natural Resources  
325 West Adams, Room 300  
Springfield, IL 62706

Kathleen Bassi  
Illinois Environmental  
Protection Agency  
2200 Churchill Road  
P.O. Box 19276  
Springfield, IL 62794-9276

Additionally, two public hearings have been scheduled on this proposal. Dates, times, and locations are:

Wednesday, April 10, 1991  
9:30 a.m.  
Room 9-031  
State of Illinois Center  
100 W. Randolph St.  
Chicago, Illinois

Monday, April 15, 1991  
9:30 a.m.  
2nd Floor Courtroom  
City Hall  
2000 Edison  
Granite City, Illinois

Persons wishing to testify at either hearing should contact the hearing officer, Elizabeth Schroer Harvey, at 312/814-6921, for information on pre-filing requirements.

- 12) Initial Regulatory Flexibility Analysis (if applicable):  
The proposed amendments to Part 215 merely update that Part to reflect the proposed additions of Parts 218 and 219. The addition of these new parts would, in effect, exempt some sources from the provisions of Part 215. Therefore, the amendments to Part 215, in and of themselves, do not affect small businesses.

- A) Date rule submitted to Business Assistance Office of the Department of Commerce and Community Affairs:  
March 4, 1991.
- B) Types of small businesses affected:
- C) Reporting, bookkeeping or other procedures required for compliance:

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- D) Types of professional skills necessary for compliance:

The full text of the proposed amendments begins on the next page.



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## TITLE 35: ENVIRONMENTAL PROTECTION

## SUBTITLE B: AIR POLLUTION

## CHAPTER I: POLLUTION CONTROL BOARD

## SUBCHAPTER C: EMISSIONS STANDARDS AND LIMITATIONS FOR STATIONARY SOURCES

## PART 215

## ORGANIC MATERIAL EMISSION STANDARDS AND LIMITATIONS

## SUBPART A: GENERAL PROVISIONS

## Section

215.100 Introduction  
215.101 Clean-up and Disposal Operations  
215.102 Testing Methods  
215.103 Abbreviations and Conversion Factors  
215.104 Definitions  
215.105 Incorporations by Reference  
215.106 Afterburners  
215.107 Determination of Applicability

## SUBPART B: ORGANIC EMISSIONS FROM STORAGE AND LOADING OPERATIONS

## Section

215.121 Storage Containers  
215.122 Loading Operations  
215.123 Petroleum Liquid Storage Tanks  
215.124 External Floating Roofs  
215.125 Compliance Dates and Geographical Areas  
215.126 Compliance Plan  
215.127 Emissions Testing  
215.128 Measurement of Seal Gaps

## SUBPART C: ORGANIC EMISSIONS FROM MISCELLANEOUS EQUIPMENT

## Section

215.141 Separation Operations  
215.142 Pumps and Compressors  
215.143 Vapor Blowdown  
215.144 Safety Relief Valves

## SUBPART E: SOLVENT CLEANING

## Section

215.181 Solvent Cleaning in General  
215.182 Cold Cleaning

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215.183 Open Top Vapor Degreasing  
215.184 Conveyorized Degreasing  
215.185 Compliance Plan

## SUBPART F: COATING OPERATIONS

## Section

215.202 Compliance Schedules  
215.204 Emission Limitations for Manufacturing Plants  
215.205 Alternative Emission Limitations  
215.206 Exemptions from Emission Limitations  
215.207 Compliance by Aggregation of Emission Sources  
215.208 Testing Methods for Volatile Organic Material Content  
215.209 Exemption from General Rule on Use of Organic Material  
215.210 Alternative Compliance Schedule  
215.211 Compliance Dates and Geographical Areas  
215.212 Compliance Plan  
215.213 Special Requirements for Compliance Plan  
215.214 Roadmaster Emissions Limitations

## SUBPART H: SPECIAL LIMITATIONS FOR SOURCES IN MAJOR-URBANIZED AREAS WHICH ARE NONATTAINMENT FOR OZONE

## Section

215.240 Applicability  
215.241 External Floating Roofs  
215.245 Flexographic and Rotogravure Printing  
215.249 Compliance Dates

## SUBPART I: ADJUSTED RACT EMISSIONS LIMITATIONS

## Section

215.260 Applicability  
215.261 Petition  
215.263 Public Hearing  
215.264 Board Action  
215.267 Agency Petition

## SUBPART K: USE OF ORGANIC MATERIAL

## Section

215.301 Use of Organic Material  
215.302 Alternative Standard  
215.303 Fuel Combustion Emission Sources  
215.304 Operations with Compliance Program  
215.305 Viscose Exemption (Repealed)



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## SUBPART N: VEGETABLE OIL PROCESSING

Section	Hexane Extraction Soybean Crushing
215.340	Hexane Extraction Corn Oil Processing
215.342	Recordkeeping For Vegetable Oil Processes
215.344	Compliance Determination
215.345	Compliance Dates and Geographical Areas
215.346	Compliance Plan
215.347	

## SUBPART P: PRINTING AND PUBLISHING

Section	Flexographic and Rotogravure Printing
215.401	Exemptions
215.402	Applicability of Subpart K
215.403	Testing and Monitoring (Repealed)
215.404	Compliance Dates and Geographical Areas
215.405	Alternative Compliance Plan
215.406	Compliance Plan
215.407	Heatset Web Offset Lithographic Printing
215.408	Testing Methods for Volatile Organic Material Content
215.409	Emissions Testing
215.410	

## SUBPART Q: LEAKS FROM SYNTHETIC ORGANIC CHEMICAL AND POLYMER MANUFACTURING EQUIPMENT

Section	Applicability
215.420	General Requirements
215.421	Inspection Program Plan for Leaks
215.422	Inspection Program for Leaks
215.423	Repairing Leaks
215.424	Recordkeeping for Leaks
215.425	Report for Leaks
215.426	Alternative Program for Leaks
215.427	Compliance Dates
215.428	Compliance Plan
215.429	General Requirements
215.430	Inspection Program Plan for Leaks
215.431	Inspection Program for Leaks
215.432	Repairing Leaks
215.433	Recordkeeping for Leaks
215.434	Report for Leaks
215.435	Alternative Program for Leaks
215.436	

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215.437	Open-Ended Valves
215.438	Standards for Control Devices
215.439	Compliance Date

## SUBPART R: PETROLEUM REFINING AND RELATED INDUSTRIES; ASPHALT MATERIALS

Section	Petroleum Refinery Waste Gas Disposal
215.441	Vacuum Producing Systems
215.442	Wastewater (Oil/Water) Separator
215.443	Process Unit Turnarounds
215.444	Leaks: General Requirements
215.445	Monitoring Program Plan for Leaks
215.446	Monitoring Program for Leaks
215.447	Recordkeeping for Leaks
215.448	Reporting for Leaks
215.449	Alternative Program for Leaks
215.450	Sealing Device Requirements
215.451	Compliance Schedule for Leaks
215.452	Compliance Dates and Geographical Areas
215.453	

## SUBPART S: RUBBER AND MISCELLANEOUS PLASTIC PRODUCTS

Section	Manufacture of Pneumatic Rubber Tires
215.461	Green Tire Spraying Operations
215.462	Alternative Emission Reduction Systems
215.463	Emission Testing
215.464	Compliance Dates and Geographical Areas
215.465	Compliance Plan
215.466	Testing Methods for Volatile Organic Material Content
215.467	

## SUBPART T: PHARMACEUTICAL MANUFACTURING

Section	Applicability of Subpart T
215.480	Control of Reactors, Distillation Units, Crystallizers, Centrifuges and Vacuum Dryers
215.481	Control of Air Dryers, Production Equipment Exhaust Systems and Filters
215.482	Material Storage and Transfer
215.483	In-Process Tanks
215.484	Leaks
215.485	Other Emission Sources
215.486	Testing
215.487	Monitors for Air Pollution Control Equipment
215.488	



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## 215.489 Compliance Schedule

## SUBPART U: COKE MANUFACTURING AND BY-PRODUCT RECOVERY

Section  
 215.500 Exceptions  
 215.510 Coke By-Product Recovery Plants  
 215.512 Coke By-Product Recovery Plant Leaks  
 215.513 Inspection Program  
 215.514 Recordkeeping Requirements  
 215.515 Reporting Requirements  
 215.516 Compliance Dates  
 215.517 Compliance Plan

## SUBPART V: AIR OXIDATION PROCESSES

Section  
 215.520 Applicability  
 215.521 Definitions  
 215.525 Emission Limitations for Air Oxidation Processes  
 215.526 Testing and Monitoring  
 215.527 Compliance Date

## SUBPART W: AGRICULTURE

Section  
 215.541 Pesticide Exception

## SUBPART X: CONSTRUCTION

Section  
 215.561 Architectural Coatings  
 215.562 Paving Operations  
 215.563 Cutback Asphalt

## SUBPART Y: GASOLINE DISTRIBUTION

Section  
 215.581 Bulk Gasoline Plants  
 215.582 Bulk Gasoline Terminals  
 215.583 Gasoline Dispensing Facilities  
 215.584 Gasoline Delivery Vessels  
 215.585 Gasoline Volatility Standards  
 215.586 Emissions Testing

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## SUBPART Z: DRY CLEANERS

Section  
 215.601 Perchloroethylene Dry Cleaners  
 215.602 Exemptions  
 215.603 Leaks  
 215.604 Compliance Dates and Geographical Areas  
 215.605 Compliance Plan  
 215.606 Exception to Compliance Plan  
 215.607 Standards for Petroleum Solvent Dry Cleaners  
 215.608 Operating Practices for Petroleum Solvent Dry Cleaners  
 215.609 Program for Inspection and Repair of Leaks  
 215.610 Testing and Monitoring  
 215.611 Exemption for Petroleum Solvent Dry Cleaners  
 215.612 Compliance Dates and Geographical Areas  
 215.613 Compliance Plan  
 215.614 Testing Method for Volatile Organic Material Content of Wastes  
 215.615 Emissions Testing

## SUBPART AA: PAINT AND INK MANUFACTURING

Section  
 215.620 Applicability  
 215.621 Exemption for Waterbase Material and Heatset Offset Ink  
 215.623 Permit Conditions  
 215.624 Open-top Mills, Tanks, Vats or Vessels  
 215.625 Grinding Mills  
 215.628 Leaks  
 215.630 Clean Up  
 215.636 Compliance Dates

## SUBPART BB: POLYSTYRENE PLANTS

Section  
 215.875 Applicability of Subpart BB  
 215.877 Emissions Limitation at Polystyrene Plants  
 215.879 Compliance Date  
 215.881 Compliance Plan  
 215.883 Special Requirements for Compliance Plan  
 215.886 Emissions Testing



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## SUBPART PP: MISCELLANEOUS FABRICATED PRODUCT MANUFACTURING PROCESSES

Section  
215.920 Applicability  
215.923 Permit Conditions  
215.926 Control Requirements

## SUBPART QQ: MISCELLANEOUS FORMULATION MANUFACTURING PROCESSES

Section  
215.940 Applicability  
215.943 Permit Conditions  
215.946 Control Requirements

## SUBPART RR: MISCELLANEOUS ORGANIC CHEMICAL MANUFACTURING PROCESSES

Section  
215.960 Applicability  
215.963 Permit Conditions  
215.966 Control Requirements

Appendix A Rule Into Section Table  
Appendix B Section Into Rule Table  
Appendix C Past Compliance Dates  
Appendix D List of Chemicals Defining Synthetic Organic Chemical and Polymer Manufacturing  
Appendix E Reference Methods and Procedures  
Appendix F Coefficients for the Total Resource Effectiveness Index (TRE) Equation

AUTHORITY: Implementing Section 10 and authorized by Section 27 of the Environmental Protection Act (Ill. Rev. Stat. 1989, ch. 111 1/2, pars. 1010 and 1027).

SOURCE: Adopted as Chapter 2: Air Pollution, Rule 205: Organic Material Emission Standards and Limitations, R71-23, 4 PCB 191, filed and effective April 14, 1972; amended in R77-3, 33 PCB 357, at 3 Ill. Reg. 18, p. 41, effective May 3, 1979; amended in R78-3 and R78-4, 35 PCB 75, at 3 Ill. Reg. 30, p. 124, effective July 28, 1979; amended in R80-5 at 7 Ill. Reg. 1244, effective January 21, 1983; codified at 7 Ill. Reg. 13601; Notice of Corrections at 7 Ill. Reg. 14575; amended in R82-14 at 8 Ill. Reg. 13254, effective July 12, 1984; amended in R83-36 at 9 Ill. Reg. 9114, effective May 30, 1985; amended in R82-14 at 9 Ill. Reg. 13960, effective August 28, 1985; amended in R85-28 at 11 Ill. Reg. 3127, effective

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## NOTICE OF PROPOSED AMENDMENTS

February 3, 1987; amended in R82-14 at 11 Ill. Reg. 7296, effective April 3, 1987; amended in R85-21(A) at 11 Ill. Reg. 11770, effective June 29, 1987; recodified in R86-39 at 11 Ill. Reg. 13541; amended in R82-14 and R86-12 at 11 Ill. Reg. 16706, effective September 30, 1987; amended in R85-21(B) at 11 Ill. Reg. 19117, effective November 9, 1987; amended in R86-36, R86-39, R86-40 at 11 Ill. Reg. 20829, effective December 14, 1987; amended in R82-14 and R86-37 at 12 Ill. Reg. 815, effective December 24, 1987; amended in R86-18 at 12 Ill. Reg. 7311, effective April 8, 1988; amended in R86-10 at 12 Ill. Reg. 7650, effective April 11, 1988; amended in R88-23 at 13 Ill. Reg. 10893, effective June 27, 1989; amended in R88-30(A) at 14 Ill. Reg. 3555, effective February 27, 1990; emergency amendments adopted in R88-30(A) at 14 Ill. Reg. 6421, effective April 11, 1990, for a maximum of 150 days; amended in R88-19 at 14 Ill. Reg. 7596, effective May 8, 1990; amended in R89-16(A) at 14 Ill. Reg. 9173, effective May 23, 1990; amended in R88-30(B) at 15 Ill. Reg. 3309, effective February 13, 1991; amended in R91-7 at 15 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_.

## SUBPART A: GENERAL PROVISIONS

## Section 215.100 Introduction

a) This Part contains standards and limitations for emissions of organic material from stationary sources located in areas other than the Chicago area counties of Cook, DuPage, Kane, Lake, McHenry, and Will and the Metro East area counties of Madison, Monroe, and St. Clair. Standards and limitations applying in the Chicago area are set forth in Part 218. Standards and limitations applying in the Metro East area are set forth in Part 219.

1) Notwithstanding any other provision of this Part, the provisions of this Part shall not apply to sources located in the Chicago area counties of Cook, DuPage, Kane, Lake, McHenry and Will unless the provisions of 35 Ill. Adm. Code Part 218 applicable to such sources are voided or otherwise made ineffective pursuant to Section 218.100 of 35 Ill. Adm. Code Part 218.

2) Notwithstanding any other provision of this Part, the provisions of this Part shall not apply to sources in the Metro East area counties of Madison,



## POLLUTION CONTROL BOARD

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Monroe and St. Clair unless the provisions of 35 Ill. Adm. Code Part 219 applicable to such sources are voided or otherwise made ineffective pursuant to Section 219.100 of 35 Ill. Adm. Code Part 219.

b) Sources subject to this Part may be subject to the following:

- 1) Permits required under 35 Ill. Adm. Code 201;
- 2) Air quality standards under 35 Ill. Adm. Code 243.

c) This Part is divided into Subparts which are grouped as follows:

- 1) Subpart A: General provisions;
- 2) Subparts B - J: Emissions from equipment and operations in common to more than one industry;
- 3) Subparts K - M: Emissions from use of organic material;
- 4) Subparts N - end: Special rules for various industry groups.

(Source: Amended at 15 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_.)

## SUBPART Y: GASOLINE DISTRIBUTION

## Section 215.581 Bulk Gasoline Plants

a) Subject to subsection (e), no person may cause or allow the transfer of gasoline from a delivery vessel into a stationary storage tank located at a bulk gasoline plant unless:

- 1) The delivery vessel and the stationary storage tank are each equipped with a vapor collection system that meets the requirements of subsection (d)(4);
- 2) Each vapor collection system is operating;
- 3) The delivery vessel displays the appropriate sticker pursuant to the requirements of Section 215.584(b)

## POLLUTION CONTROL BOARD

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or (d);

4) The pressure relief valve(s) on the stationary storage tank and the delivery vessel are set to release at no less than 0.7 psi or the highest pressure allowed by state or local fire codes or the guidelines of the National Fire Prevention Association; and

5) The stationary storage tank is equipped with a submerged loading pipe.

b) Subject to subsection (f), no person may cause or allow the transfer of gasoline from a stationary storage tank located at a bulk gasoline plant into a delivery vessel unless:

- 1) The requirements set forth in subsections (a)(1) through (a)(4) are met; and
- 2) Equipment is available at the bulk gasoline plant to provide for the submerged filling of the delivery vessel or the delivery vessel is equipped for bottom loading.

c) Subject to subsection (e), each owner of a stationary storage tank located at a bulk gasoline plant shall:

- 1) Equip each stationary storage tank with a vapor control system that meets the requirements of subsection (a) or (b), whichever is applicable;
  - 2) Provide instructions to the operator of the bulk gasoline plant describing necessary maintenance operations and procedures for prompt notification of the owner in case of any malfunction of a vapor control system; and
  - 3) Repair, replace or modify any worn out or malfunctioning component or element of design.
- d) Subject to subsection (e), each operator of a bulk gasoline plant shall:
- 1) Maintain and operate each vapor control system in accordance with the owner's instructions;



## POLLUTION CONTROL BOARD

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- 2) Promptly notify the owner of any scheduled maintenance or malfunction requiring replacement or repair of a major component of a vapor control system; and
  - 3) Maintain gauges, meters or other specified testing devices in proper working order;
  - 4) Operate the bulk plant vapor collection system and gasoline loading equipment in a manner that prevents:
    - A) Gauge pressure from exceeding 18 inches of water and vacuum from exceeding 6 inches of water, as measured as close as possible to the vapor hose connection; and
    - B) A reading equal to or greater than 100 percent of the lower explosive limit (LEL measured as propane) when tested in accordance with the procedure described in EPA 450/2-78-051 Appendix B; and
  - C) Avoidable leaks of liquid during loading or unloading operations.
  - 5) Provide a pressure tap or equivalent on the bulk plant vapor collection system in order to allow the determination of compliance with 215.581(d)(4)(A); and
  - 6) Within 15 business days after discovery of the leak by the owner, operator, or the Agency, repair and retest a vapor collection system which exceeds the limits of subsection (d)(4)(A) or (B).
- e) The requirements of subsections (a), (c) and (d) shall not apply to:
- 1) Any stationary storage tank with a capacity of less than 575 gallons; or
  - 2) Any bulk gasoline plant whose annual gasoline throughput is less than 350,000 gallons as averaged over the preceding three calendar years.

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- f) The requirements of subsection (b) shall only apply to bulk gasoline plants:
    - 1) That have an annual gasoline throughput greater than or equal to 1,000,000 gallons, as averaged over the preceding three calendar years; and
    - 2) That either distribute gasoline to gasoline dispensing facilities subject to the requirements of Section 215.583(a)(2), 35 Ill. Adm. Code 218.583(b)(2) or 35 Ill. Adm. Code 219.583(a)(2) or that are located in the following counties: Boone, Cook, DuPage, Kane, Lake, Madison, McHenry, Peoria, Rock Island, St. Clair, Tazewell, Will or Winnebago.
  - g) Bulk gasoline plants were required to take certain actions to achieve compliance which are summarized in Appendix C.
- (Source: Amended at 15 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_.)



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- 1) The Heading of the Part: Organic Material Emission Standards and Limitations for the Chicago Area

- 2) Code Citation: 35 Ill. Adm. Code 218

- 3) Section Number:

218.100

218.101

218.102

218.103

218.104

218.105

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218.107

218.108

218.109

218.110

218.111

218.112

218.121

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218.124

218.125

218.126

Proposed Action:

New Section

New Section

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218.401 New Section

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218.403 New Section

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218.521 New Section

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218.541 New Section

218.561 New Section



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 218.563 New Section  
 218.581 New Section  
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 218.601 New Section  
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 218.980 New Section  
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 218.987 New Section  
 218.988 New Section  
 218.990 New Section  
 218.991 New Section  
 Appendix A New Section  
 Appendix B New Section  
 Appendix C New Section  
 Appendix D New Section

4) Statutory Authority: Illinois Environmental Protection Act (Ill. Rev. Stat. 1989, ch. 111, pars. 1010, 1027, and 1028.2.)

5) A Complete Description of the Subjects and Issues Involved:  
 The proposed rules are designed to control organic material emissions, in an effort to reduce the formation of the pollutant ozone in the atmosphere. The proposed rules seek to correct deficiencies in Illinois' state implementation plan (SIP) for ozone in the Chicago area, and require the implementation of reasonably available control technology (RACT) for certain sources of volatile organic material (VOM). This rulemaking is required by the federal Clean Air Act Amendments of 1990. The Illinois Environmental Protection Agency has certified that this rulemaking is a "required rule" pursuant to Section 28.2 of the Environmental Protection Act (Ill. Stat. 1989, ch. 111 1/2, par. 1028.2, as amended by P.A. 86-1409, effective January 1, 1991), and the Board has accepted that certification.

6) Will this proposed rule replace an emergency rule currently in effect? No.

7) Does this rulemaking contain an automatic repeal date?

If "yes," please specify the date: Yes No

8) Does this proposed (amendment, repealer) contain incorporations by reference? Yes

9) Are there any other amendments pending on this Part? No.

10) Statement of Statewide Policy Objective (if applicable)?  
 These proposed rules do not create or enlarge a state



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mandate as defined in Section 3(b) of the State Mandates Act (Ill. Rev. Stat. 1989, ch. 85, par. 2203(b)).

- 11) Time, Place and Manner in which interested persons may comment on this proposed rulemaking:

Send written comments concerning this rulemaking within 45 days of publication in the Illinois Register to Dorothy M. Gunn, Clerk, Illinois Pollution Control Board, 100 West Randolph Street, Suite 11-500, Chicago, Illinois 60601. Please include the docket number of this rulemaking (R91-7) on all comments. Please send copies of all comments to:

Bonnie Eynon  
Dept. of Energy and  
Natural Resources  
325 West Adams, Room 300  
Springfield, IL 62706

Kathleen Bassi  
Illinois Environmental  
Protection Agency  
2200 Churchill Road  
P.O. Box 19276  
Springfield, IL 62794-9276

Additionally, two public hearings have been scheduled on this proposal. Dates, times, and locations are:

Wednesday, April 10, 1991	Monday, April 15, 1991
9:30 a.m.	9:30 a.m.
Room 9-031	2nd Floor Courtroom
State of Illinois Center	City Hall
100 W. Randolph	2000 Edison
Chicago, Illinois	Granite City, Illinois

Persons wishing to testify at either hearing should contact the hearing officer, Elizabeth Schroer Harvey, at 312/814-6921, for information on pre-filing requirements.

- 12) Initial Regulatory Flexibility Analysis (if applicable):  
Because this rulemaking proposes state adoption of already effective federal rules, the rulemaking has not effect on small businesses.

- A) Date rule submitted to Business Assistance Office of the Department of Commerce and Community Affairs:  
March 4, 1991
- B) Types of small businesses affected:
- C) Reporting, bookkeeping or other procedures required for compliance:
- D) Professional skills necessary for compliance:

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The full text of the Proposed Rules begins on the next page:



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## NOTICE OF PROPOSED RULES

## TITLE 35: ENVIRONMENTAL PROTECTION

## SUBTITLE B: AIR POLLUTION

## CHAPTER I: POLLUTION CONTROL BOARD

## SUBCHAPTER C: EMISSIONS STANDARDS AND LIMITATIONS FOR STATIONARY SOURCES

## PART 218

ORGANIC MATERIAL EMISSION STANDARDS AND LIMITATIONS  
FOR THE CHICAGO AREA

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218.100	Introduction
218.101	Clean-up and Disposal Operations
218.102	Abbreviations and Conversion Factors
218.103	Applicability
218.104	Definitions
218.105	Test Methods and Procedures
218.106	Compliance Dates
218.107	Afterburners
218.108	Exemptions, Variations, and Alternative Means of Control or Compliance Determinations
218.109	Vapor Pressure of Volatile Organic Liquids
218.110	Vapor Pressure of Organic Material or Solvents
218.111	Vapor Pressure of Volatile Organic Material
218.112	Incorporations by Reference

## SUBPART B: ORGANIC EMISSIONS FROM STORAGE AND LOADING OPERATIONS

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218.122	Loading Operations
218.123	Petroleum Liquid Storage Tanks
218.124	External Floating Roofs
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## SUBPART C: ORGANIC EMISSIONS FROM MISCELLANEOUS EQUIPMENT

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218.141	Separation Operations
218.142	Pumps and Compressors
218.143	Vapor Blowdown
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## SUBPART E: SOLVENT CLEANING

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218.181	Solvent Cleaning in General
218.182	Cold Cleaning
218.183	Open Top Vapor Degreasing
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218.185	Compliance Schedule
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## SUBPART F: COATING OPERATIONS

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218.204	Emission Limitations for Manufacturing Plants
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218.207	Alternative Emission Limitations
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218.405	Heatset Web Offset Lithographic Printing

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MANUFACTURING EQUIPMENT

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218.421	General Requirements
218.422	Inspection Program Plan for Leaks
218.423	Inspection Program for Leaks
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218.425	Recordkeeping for Leaks
218.426	Report for Leaks
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218.428	Open-ended Valves



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218.429 Standards for Control Devices  
218.430 Compliance Date

## SUBPART R: PETROLEUM REFINING AND RELATED INDUSTRIES; ASPHALT MATERIALS

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218.442 Vacuum Producing Systems  
218.443 Wastewater (Oil/Water) Separator  
218.444 Process Unit Turnarounds  
218.445 Leaks: General Requirements  
218.446 Monitoring Program Plan for Leaks  
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218.448 Recordkeeping for Leaks  
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218.462 Green Tire Spraying Operations  
218.463 Alternative Emission Reduction Systems  
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218.465 Compliance Dates  
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218.481 Control of Reactors, Distillation Units, Crystallizers, Centrifuges and Vacuum Dryers  
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218.484 In-Process Tanks  
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218.521 Definitions

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218.525 Emission Limitations for Air Oxidation Processes  
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218.541 Pesticide Exception

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218.561 Architectural Coatings  
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## SUBPART Y: GASOLINE DISTRIBUTION

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218.581 Bulk Gasoline Plants  
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218.604 Compliance Dates  
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218.625 Grinding Mills  
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218.986 Control Requirements  
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218.988 Testing

SUBPART UU: RECORDKEEPING AND REPORTING FOR  
NON-CTG SOURCES

## SUBPART BB: POLYSTYRENE PLANTS

## Section

218.875 Applicability of Subpart BB  
218.877 Emissions Limitation at Polystyrene Plants  
218.879 Compliance Date  
218.881 Compliance Plan  
218.883 Special Requirements for Compliance Plan  
218.886 Emissions Testing

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218.990 Exempt Emission Sources  
218.991 Subject Emission Sources

Appendix A: List of Chemicals Defining Synthetic Organic Chemical and Polymer Manufacturing  
Appendix B: VOM Measurement Techniques for Capture Efficiency  
Appendix C: Reference Methods and Procedures  
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## SUBPART PP: MISCELLANEOUS FABRICATED PRODUCT MANUFACTURING PROCESSES

## Section

218.920 Applicability  
218.923 Permit Conditions  
218.926 Control Requirements  
218.927 Compliance Schedule  
218.928 Testing

AUTHORITY: Implementing Section 10 and authorized by Section 28.2 of the Environmental Protection Act (Ill. Rev. Stat. 1989, ch. 111 1/2, pars. 1010 and 1028.2)

SOURCE: Adopted at \_\_\_\_ Ill. Reg. \_\_\_\_, effective \_\_\_\_.

## SUBPART QQ: MISCELLANEOUS FORMULATION MANUFACTURING PROCESSES

## Section

218.940 Applicability  
218.943 Permit Conditions  
218.946 Control Requirements  
218.947 Compliance Schedule  
218.948 Testing

a) This Part contains standards and limitations for emissions of organic material from stationary sources located in the Chicago area, which is comprised of Cook, DuPage, Kane, Lake, McHenry and Will Counties.

b) Sources subject to this Part may be subject to the following:

1) Permits required under 35 Ill. Adm. Code 201;

2) Air quality standards under 35 Ill. Adm. Code 243;

c) This Part is divided into Subparts which are grouped as follows:

1) Subpart A: General Provisions

2) Subparts B-F: Emissions from equipment and operations in common to more than one industry;

3) Subpart G: Emissions from use of organic material;

4) Subparts H-end: Special rules for various industry groups.

## SUBPART TT: OTHER EMISSION SOURCES

## Section

218.980 Applicability  
218.983 Permit Conditions



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## Section 218.101 Cleanup and Disposal Operation

Emission of organic material released during clean-up operations and disposal shall be included with other emissions of organic material from the related emission source or air pollution control equipment in determining total emissions.

## Section 218.102 Abbreviations and Conversion Factors

## a) The following abbreviations are used in this Part:

ASTM American Society for Testing and Materials

bb1 barrels (42 gallons)

°C degrees Celsius or centigrade

cm centimeters

cu in. cubic inches

°F degrees Fahrenheit

FIP Federal Implementation Plan

ft feet

ft<sup>2</sup> square feet

g grams

gpm gallons per minute

g/mole grams per mole

gal gallons

hr hours

in inches

°K degrees Kelvin

kcal kilocalories

kg kilograms

kg/hr kilograms per hour

kPa kilopascals; one thousand newtons per square meter

l liters

l/sec liters per second

lbs pounds

lbs/hr pounds per hour

lbs/gal pounds per gallon

LEL lower explosive limit

m meters

m<sup>2</sup> square meters

m<sup>3</sup> cubic meters

mg milligrams

Mg Megagrams, metric tons or tonnes

ml milliliters

min minutes

MJ megajoules

mm Hg millimeters of mercury

ppm parts per million

ppmv parts per million by volume

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psi pounds per square inch  
psia pounds per square inch absolute  
psig pounds per square inch gauge  
scf standard cubic feet  
scm standard cubic meters  
sec seconds  
SIP State Implementation Plan  
TTE temporary total enclosure  
sq cm square centimeters  
sq in square inches  
T English ton  
ton English ton  
USEPA United States Environmental Protection Agency  
VOC volatile organic compounds  
VOL volatile organic liquids  
VOM volatile organic materials

## b) The following conversion factors are used in this Part.

English	Metric
1 gal	3.785 l
1,000 gal	3.785 l or 3.785 m <sup>3</sup>
1 psia	6.897 kPa (51.71 mm Hg)
2,205 lbs	1 kg
1 bbl	159.0 l
1 cu in	16.39 ml
1 lb/gal	119.800 mg/l
1 ton	0.907 Mg
1 T	0.907 Mg

## Section 218.103 Applicability

The provisions of this Part shall apply to all sources located in Cook, DuPage, Kane, Lake, McHenry or Will County.

a) The provisions of this Part shall become effective sixty days after a final decision by the federal appellate court of the general appeal (Illinois Environmental Regulatory Group v. USEPA, No. 90-2778 (and consolidated cases) (7th Cir.)) of the federal implementation plan (FIP) for the Chicago area promulgated by the U.S. Environmental Protection Agency (55 Fed. Reg. 26184, June 29, 1990; 55 Fed. Reg. 31981, August 6, 1990; 55 Fed. Reg. 39774, September 28, 1990), provided, however, that if a provision of the FIP is voided or made ineffective by a federal court, the corresponding provision in this proceeding shall not become effective.

b) The provisions of this Part specifically applicable to each appellant who appealed the FIP for the Chicago area shall become effective



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sixty days after a final decision of that appellant's appeal by the federal appellate court; provided, however, that if the provisions of the FIP applicable to that party are voided or made ineffective by a federal court, the corresponding provisions in this proceeding shall not become effective.

## Section 218.104 Definitions

The following terms are defined for the purpose of this Part.

"Accelacota" means a pharmaceutical coating operation which consists of a horizontally rotating perforated drum in which tablets are placed, a coating is applied by spraying, and the coating is dried by the flow of air across the drum through the perforations.

"Accumulator" means the reservoir of a condensing unit receiving the condensate from a surface condenser.

"Acid Gases" means for the purposes of Section 9.4 of the Environmental Protection Act (the Act) (Ill. Rev. Stat. 1987, ch. 111 1/2, par. 1009.4), hydrogen chloride, hydrogen fluoride and hydrogen bromide, which exist as gases, liquid mist, or any combination thereof.

"Actual emissions" means the actual quantity of VOM emissions from an emission source during a particular time period.

"Actual Heat Input" means the quantity of heat produced by the combustion of fuel using the gross heating value of the fuel.

"Adhesive" means any substance or mixture of substances intended to serve as a joining compound.

"Afterburner" means a control device in which materials in gaseous effluent are combusted.

"Air contaminant" means any solid, liquid, or gaseous matter, any odor, or any form of energy, that is capable of being released into the atmosphere from an emission source.

"Air dried coatings" means any coatings that dry by use of air or forced air at temperatures up to 363.15 K (194°F).

"Air pollution" means the presence in the atmosphere of one or more air contaminants in sufficient quantities and of such characteristics and duration as to be injurious to human, plant, or animal life, to health, or to property, or to unreasonably interfere with the enjoyment of life or property.

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"Air pollution control equipment" means any equipment or facility of a type intended to eliminate, prevent, reduce or control the emission of specified air contaminants to the atmosphere.

"Air suspension coater/dryer" means a pharmaceutical coating operation which consists of vertical chambers in which tablets or particles are placed, and a coating is applied and then dried while the tablets or particles are kept in a fluidized state by the passage of air upward through the chambers.

"Airless spray" means a spray coating method in which the coating is atomized by forcing it through a small opening at high pressure. The coating liquid is not mixed with air before exiting from the nozzle.

"Air-assisted airless spray" means a spray coating method which combines compressed air with hydraulic pressure to atomize the coating material into finer droplets than is achieved with pure airless spray. Lower hydraulic pressure is used than with airless spray.

"Allowable emissions" means the quantity of VOM emissions during a particular time period from a stationary source calculated using the maximum rated capacity of the source (unless restricted by federally enforceable limitations on operating rate, hours of operation, or both) and the most stringent of: the applicable standards in 40 CFR Parts 60 and 61; the applicable implementation plan; or a federally enforceable permit.

"Ambient air quality standards" means those standards designed to protect the public health and welfare codified in 40 CFR Part 50 and promulgated from time to time by the USEPA pursuant to authority contained in Section 108 of the Clean Air Act, 42 U.S.C. 7401 et seq., as amended from time to time.

"Applicator" means a device used in a coating line to apply coating.

"As applied" means the exact formulation of a coating during application on or impregnation into a substrate.

"Architectural Coating" means any coating used for residential or commercial buildings or their appurtenances, or for industrial buildings, which is site applied.

"Asphalt" means the dark-brown to black cementitious material (solid, semisolid, or liquid in consistency) of which the main constituents are bitumens which occur naturally or as a residue of petroleum refining.



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"Asphalt Prime Coat" means a low-viscosity liquid asphalt applied to an absorbent surface as the first of more than one asphalt coat.

"Automobile" means a motor vehicle capable of carrying no more than 12 passengers.

"Automobile or light-duty truck assembly plant" means a facility where parts are assembled or finished for eventual inclusion into a finished automobile or light-duty truck ready for sale to vehicle dealers, but not including customizers, body shops, and other repainters.

"Automobile or light-duty truck refinishing" means the repainting of used automobiles and light-duty trucks.

"Baked coatings" means any coating which is cured or dried in an oven where the oven air temperature exceeds 90°C (194°F).

"Batch Loading" means the process of loading a number of individual parts at the same time for degreasing.

"Bead-Dipping" means the dipping of an assembled tire bead into a solvent-based cement.

"Binders" means organic materials and resins which do not contain VOM.

"Bituminous coatings" means black or brownish coating materials which are soluble in carbon disulfide, which consist mainly of hydrocarbons, and which are obtained from natural deposits or as residues from the distillation of crude oils or of low grades of coal.

"British Thermal Unit" means the quantity of heat required to raise one pound of water from 60°F to 61°F (abbreviated btu).

"Brush or wipe coating" means a manual method of applying a coating using a brush, cloth, or similar object.

"Bulk gasoline plant" means a gasoline storage and distribution facility with an average throughput of 76,000 l (20,000 gal) or less on a 30-day rolling average that distributes gasoline to gasoline dispensing facilities.

"Bulk Gasoline Terminal" means any gasoline storage and distribution facility that receives gasoline by pipeline, ship or barge, and distributes gasoline to bulk gasoline plants or gasoline dispensing facilities.

"Can" means any metal container, with or without a top, cover, spout or handles, into which solid or liquid materials are packaged.

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"Can coating" means any coating applied on a single walled container that is manufactured from metal sheets thinner than 29 gauge (0.0141 in.).

"Can coating facility" means a facility that includes one or more can coating line(s).

"Can coating line" means a coating line in which any protective, decorative, or functional coating is applied onto the surface of cans or can components.

"Capture" means the containment or recovery of emissions from a process for direction into a duct which may be exhausted through a stack or vent to a control device. The overall abatement of emissions from a process with an add-on control device is a function both of the capture efficiency and of the control device.

"Capture device" means a hood, enclosed room floor sweep or other means of collecting solvent or other pollutants into a duct. The pollutant can then be directed to a pollution control device such as an afterburner or carbon adsorber. Sometimes the term is used loosely to include the control device.

"Capture efficiency" means the fraction of all VOM generated by a process that are directed to an abatement or recovery device.

"Capture system" means all equipment (including, but not limited to, hoods, ducts, fans, ovens, dryers, etc.) used to contain, collect and transport an air pollutant to a control device.

"Clean Air Act" means the Clean Air Act of 1963, as amended, including the Clean Air Act Amendments of 1977, (42 U.S.C. 7401 et seq.), and the Clean Air Act Amendments of 1990, (P.A. 101549).

"Clear coating" means coatings that lack color and opacity or are transparent using the undercoat as a reflectant base or undertone color.

"Clear topcoat" means the final coating which contains binders, but not opaque pigments, and is specifically formulated to form a transparent or translucent solid protective film.

"Closed Purge System" means a system that is not open to the atmosphere and that is composed of piping, connections, and, if necessary, flow inducing devices that transport liquid or vapor from a piece or pieces of equipment to a control device, or return the liquid or vapor to the process line.



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"Closed vent system" means a system that is not open to the atmosphere and is composed of piping, connections, and, if necessary, flow inducing devices that transport gas or vapor from an emission source to a control device.

"Coating" means a material applied onto or impregnated into a substrate for protective, decorative, or functional purposes. Such materials include, but are not limited to, paints, varnishes, sealers, adhesives, thinners, diluents, and inks.

"Coating applicator" means equipment used to apply a coating.

"Coating line" means an operation consisting of a series of one or more coating applicators and any associated flash-off areas, drying areas, and ovens wherein a surface coating is applied, dried, or cured. (It is not necessary for an operation to have an oven, or flash-off area, or drying area to be included in this definition.)

"Coating plant" means any plant that contains one or more coating line(s).

"Coil" means any flat metal sheet or strip that is rolled or wound in concentric rings.

"Coil coating" means any coating applied on any flat metal sheet or strip that comes in rolls or coils.

"Coil coating facility" means a facility that includes one or more coil coating line(s).

"Coil coating line" means a coating line in which any protective, decorative or functional coating is applied onto the surface of flat metal sheets, strips, rolls, or coils for industrial or commercial use.

"Cold cleaning" means the process of cleaning and removing soils from surfaces by spraying, brushing, flushing, or immersion while maintaining the organic solvent below its boiling point. Wipe cleaning is not included in this definition.

"Complete Combustion" means a process in which all carbon contained in a fuel or gas stream is converted to carbon dioxide.

"Component" means, with respect to synthetic organic chemical and polymer manufacturing equipment, and petroleum refining and related industries, any piece of equipment which has the potential to leak VOM including, but not limited to, pump seals, compressor seals, seal oil degassing vents, pipeline valves, pressure relief devices,

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process drains, and open ended pipes. This definition excludes valves which are not externally regulated, flanges, and equipment in heavy liquid service. For purposes of Subpart Q of this Part, this definition also excludes bleed ports of gear pumps in polymer service.

"Concrete curing compounds" means any coating applied to freshly poured concrete to retard the evaporation of water.

"Condensate" means volatile organic liquid separated from its associated gases, which condenses due to changes in the temperature or pressure and remains liquid at standard conditions.

"Continuous process" means, with respect to polystyrene resin, a method of manufacture in which the styrene raw material is delivered on a continuous basis to the reactor in which the styrene is polymerized to polystyrene.

"Control device" means equipment (such as an afterburner or adsorber) used to remove or prevent the emission of air pollutants from a contaminated exhaust stream.

"Control device efficiency" means the ratio of the pollution prevented by a control device and the pollution introduced to the control device, expressed as a percentage.

"ConveyORIZED degreasing" means the continuous process of cleaning and removing soils from surfaces utilizing either cold or vaporized solvents.

"Crude oil" means a naturally occurring mixture which consists of hydrocarbons and sulfur, nitrogen, or oxygen derivatives of hydrocarbons and which is a liquid at standard conditions.

"Crude oil gathering" means the transportation of crude oil or condensate after custody transfer between a production facility and a reception point.

"Custody transfer" means the transfer of produced petroleum and/or condensate after processing and/or treating in the producing operations, from storage tanks or automatic transfer facilities to pipelines or any other forms of transportation.

"Cutback Asphalt" means any asphalt which has been liquified by blending with petroleum solvents other than residual fuel oil and has not been emulsified with water.

"Daily-weighted average VOM content" means the average VOM content of two or more coatings as applied on a coating line during any day,



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taking into account the fraction of total coating volume that each coating represents, as calculated with the following equation:

$$VOM_w = \left[ \sum_{i=1}^n V_i C_i \right] / V_T$$

where:

$VOM_w$  = The average VOM content of two or more coatings as applied each day on a coating line in units of kg VOM/l (lbs VOM/gal) of coating (minus water and any compounds which are specifically exempted from the definition of VOM).

$n$  = The number of different coatings as applied each day on a coating line,

$V_i$  = The volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on a coating line in units of l (gal).

$C_i$  = The VOM content of each coating as applied each day on a coating line in units of kg VOM/l (lbs VOM/gal) of coating (minus water and any compounds which are specifically exempted from the definition of VOM), and

$V_T$  = The total volume of all coatings (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on a coating line in units of l (gal).

"Day" means the consecutive 24 hours beginning at 12:00 AM (midnight) local time.

"Degreaser" means any equipment or system used in solvent cleaning.

"Delivery vessel" means any tank truck or trailer equipped with a storage tank that is used for the transport of gasoline to a stationary storage tank at a gasoline dispensing facility, bulk gasoline plant, or bulk gasoline terminal.

"Dip coating" means a method of applying coatings in which the part is submerged in a tank filled with the coating.

"Distillate Fuel Oil" means fuel oils of grade No. 1 or 2 as specified in detailed requirements for fuel oil ASTM D-369-69 (1971).

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"Dry Cleaning Facility" means a facility engaged in the cleaning of fabrics using an essentially nonaqueous solvent by means of one or more solvent washes, extraction of excess solvent by spinning and drying by tumbling in an airstream. The facility includes, but is not limited to, washers, dryers, filter and purification systems, waste disposal systems, holding tanks, pumps and attendant piping and valves.

"Effluent Water Separator" means any tank, box, sump or other apparatus in which any organic material floating on or entrained or contained in water entering such tank, box, sump or other apparatus is physically separated and removed from such water prior to outfall, drainage or recovery of such water.

"Electrostatic bell or disc spray" means an electrostatic spray coating method in which a rapidly-spinning bell- or disc-shaped applicator is used to create a fine mist and apply the coating with high transfer efficiency.

"Electrostatic spray" means a spray coating method in which opposite electrical charges are applied to the substrate and the coating. The coating is attracted to the object due to the electrostatic potential between them.

"Emission Rate" means total quantity of any air contaminant discharge into the atmosphere in any one-hour period.

"Emission source" and "source" mean any facility from which VOM is emitted or capable of being emitted into the atmosphere.

"Enamel" means a coating that cures by chemical cross-linking of its base resin. Enamels can be distinguished from lacquers because enamels are not readily resolvable in their original solvent.

"Enclose" means to cover any VOL surface that is exposed to the atmosphere.

"End sealing compound coat" means a compound applied to can ends which functions as a gasket when the end is assembled onto the can.

"Excess Air" means air supplied in addition to the theoretical quantity necessary for complete combustion of all fuel and/or combustible waste material.

"Excessive release" means a discharge of more than 295 g (0.65 lbs) of mercaptans and/or hydrogen sulfide into the atmosphere in any 5-minute period.



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"Exterior base coat" means a coating applied to the exterior of a can body, or flat sheet to provide protection to the metal or to provide background for any lithographic or printing operation.

"Exterior end coat" means a coating applied to the exterior end of a can to provide protection to the metal.

"External-floating roof" means a cover over an open top storage tank consisting of a double deck or pontoon single deck which rests upon and is supported by the volatile organic liquid being contained and is equipped with a closure seal or seals to close the space between the roof edge and tank shell.

"Extreme environmental conditions" means exposure to any or all of the following: ambient weather conditions; temperatures consistently above 95°C (203°F); detergents; abrasive and scouring agents; solvents; or corrosive atmospheres.

"Extreme performance coating" means any coating which during intended use is exposed to extreme environmental conditions.

"Fabric coating" means any coating applied on textile fabric. Fabric coating includes the application of coatings by impregnation.

"Fabric coating facility" means a facility that includes one or more fabric coating lines.

"Fabric coating line" means a coating line in which any protective, decorative, or functional coating or reinforcing material is applied on or impregnated into a textile fabric.

"Federally enforceable" means all limitations and conditions which are enforceable by the Administrator including those requirements developed pursuant to 40 CFR Parts 60 and 61; requirements within any applicable implementation plan; and any permit requirements established pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Part 51 Subpart I and 40 CFR 51.166.

"Final repair coat" means the repainting of any topcoat which is damaged during vehicle assembly.

"Firebox" means the chamber or compartment of a boiler or furnace in which materials are burned, but not the combustion chamber or afterburner of an incinerator.

"Fixed-roof tank" means a cylindrical shell with a permanently affixed roof.

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"Flexographic printing" means the application of words, designs, and pictures to a substrate by means of a roll printing technique in which the pattern to be applied is raised above the printing roll and the image carrier is made of elastomeric materials.

"Flexographic printing line" means a printing line in which each roll printer uses a roll with raised areas for applying an image such as words, designs, or pictures to a substrate. The image carrier on the roll is made of rubber or other elastomeric material.

"Floating roof" means a roof on a stationary tank, reservoir, or other container which moves vertically upon change in volume of the stored material.

"Fountain solution" means the solution which is applied to the image plate to maintain hydrophilic properties of the non-image areas.

"Freeboard Height" means for open top vapor degreasers, the distance from the top of the vapor zone to the top of the degreaser tank. For cold cleaning degreasers, the distance from the solvent to the top of the degreaser tank.

"Fuel combustion emission source" means any furnace, boiler, or similar equipment used for the primary purpose of producing heat or power by indirect heat transfer.

"Fuel gas system" means a system for collection of refinery fuel gas including, but not limited to, piping for collecting tail gas from various process units, mixing drums and controls, and distribution piping.

"Gas service" means that the component contains process fluid that is in the gaseous state at operating conditions.

"Gas/gas method" means either of two methods for determining capture which rely only on gas phase measurements. The first method requires construction of a temporary total enclosure (TTE) to ensure that all would-be fugitive emissions are measured. The second method uses the building or room which houses the facility as an enclosure. The second method requires that all other VOM sources within the room be shut down while the test is performed, but all fans and blowers within the room must be operated according to normal procedures.

"Gasoline" means any petroleum distillate or petroleum distillate/alcohol blend having a Reid vapor pressure of 27.6 kPa or greater which is used as a fuel for internal combustion engines.

"Gasoline dispensing facility" means any site where gasoline is transferred from a stationary storage tank to a motor vehicle



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gasoline tank used to provide fuel to the engine of that motor vehicle.

"Green Tire Spraying" means the spraying of green tires, both inside and outside, with release compounds which help remove air from the tire during molding and prevent the tire from sticking to the mold after curing.

"Green Tires" means assembled tires before molding and curing have occurred.

"Gross vehicle weight" means the manufacturer's gross weight rating for the individual vehicle.

"Gross vehicle weight rating" means the value specified by the manufacturer as the maximum design loaded weight of a single vehicle.

"Heated airless spray" means an airless spray coating method in which the coating is heated just prior to application.

"Heatset" means a class of web-offset lithography which requires a heated dryer to solidify the printing inks.

"Heatset-web-offset lithographic printing line" means a lithographic printing line in which a blanket cylinder is used to transfer ink from a plate cylinder to a substrate continuously fed from a roll or an extension process and an oven is used to solidify the printing inks.

"Heavy liquid" means liquid with a true vapor pressure of less than 0.3 kPa (0.04 psi) at 294.3°K (70°F) established in a standard reference text or as determined by ASTM method D2879-86 (incorporated by reference in Section 218.112); or which has 0.1 Reid Vapor Pressure as determined by ASTM method D323-82 (incorporated by reference in Section 218.112); or which when distilled requires a temperature of 421.95°K (300°F) or greater to recover 10 percent of the liquid as determined by ASTM method D86-82 (incorporated by reference in Section 218.112).

"Heavy off-highway vehicle products" means, for the purpose of Subpart F of this Part, heavy construction, mining, farming, or material handling equipment; heavy industrial engines; diesel-electric locomotives and associated power generation equipment; and the components of such equipment or engines.

"Heavy off-highway vehicle products coating facility" means a facility that includes one or more heavy off-highway vehicle products coating line(s).

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"Heavy off-highway vehicle products coating line" means a coating line in which any protective, decorative, or functional coating is applied onto the surface of heavy off-highway vehicle products.

"High temperature aluminum coating" means a coating that is certified to withstand a temperature of 537.8°C (1000°F) for 24 hours.

"Hood" means a partial enclosure or canopy for capturing and exhausting, by means of a draft, the organic vapors or other fumes rising from a coating process or other source.

"Hood capture efficiency" means the emissions from a process which are captured by the hood and directed into a control device, expressed as a percentage of all emissions.

"Hot well" means the reservoir of a condensing unit receiving the condensate from a barometric condenser.

"Hour" means a block period of 60 minutes (e.g., 1:00am to 2:00am).

"In-process tank" means a container used for mixing, blending, heating, reacting, holding, crystallizing, evaporating or cleaning operations in the manufacture of pharmaceuticals.

"In-situ Sampling Systems" means nonextractive samplers or in-line samplers.

"In vacuum service" means, for the purpose of Subpart Q of this Part, equipment which is operating at an internal pressure that is at least 5 kPa (0.73 psia) below ambient pressure.

"Incinerator" means a combustion apparatus in which refuse is burned.

"Indirect heat transfer" means transfer of heat in such a way that the source of heat does not come into direct contact with process materials.

"Ink" means a coating used in printing, impressing, or transferring an image onto a substrate.

"Interior body spray coat" means a coating applied by spray to the interior of a can body.

"Internal-floating roof" means a cover or roof in a fixed-roof tank which rests upon and is supported by the volatile organic liquid being contained and is equipped with a closure seal or seals to close the space between the roof edge and tank shell.



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"Lacquers" means any clear wood finishes formulated with nitrocellulose or synthetic resins to dry by evaporation without chemical reaction, including clear lacquer sanding sealers.

"Large appliance" means any residential and commercial washers, dryers, ranges, refrigerators, freezers, water heaters, dishwashers, trash compactors, air conditioners, and other similar products.

"Large appliance coating" means any coating applied to the component metal parts (including, but not limited to, doors, cases, lids, panels, and interior support parts) of residential and commercial washers, dryers, ranges, refrigerators, freezers, water heaters, dishwashers, trash compactors, air conditioners, and other similar products.

"Large appliance coating facility" means a facility that includes one or more large appliance coating line(s).

"Large appliance coating line" means a coating line in which any protective, decorative, or functional coating is applied onto the surface of large appliances.

"Light liquid" means VOM in the liquid state which is not defined as heavy liquid.

"Light-duty truck" means any motor vehicle rated at 3,850 kg gross vehicle weight or less, designed mainly to transport property.

"Liquid/gas method" means either of two methods for determining capture which require both gas phase and liquid phase measurements and analysis. The first method requires construction of a TTE. The second method uses the building or room which houses the facility as an enclosure. The second method requires that all other VOM sources within the room be shut down while the test is performed, but all fans and blowers within the room must be operated according to normal procedures.

"Liquid-Mounted Seal" means a primary seal mounted in continuous contact with the liquid between the tank wall and the floating roof edge around the circumference of the roof.

"Liquid service" means that the equipment or component contains process fluid that is in a liquid state at operating conditions.

"Liquids Dripping" means any visible leaking from a seal including spraying, misting, clouding and ice formation.

"Lithographic printing line" means a printing line, except that the substrate is not necessarily fed from an unwinding roll, in which

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each roll printer uses a roll where both the image and non-image areas are essentially in the same plane (planographic).

"Low Solvent Coating" means a coating which contains less organic solvent than the conventional coatings used by the industry. Low solvent coatings include water-borne, higher solids, electro-deposition and powder coatings.

"Magnet wire" means aluminum or copper wire formed into an electromagnet coil.

"Magnet wire coating" means any coating or electrically insulating varnish or enamel applied to magnet wire.

"Magnet wire coating facility" means a facility that includes one or more magnet wire coating line(s).

"Magnet wire coating line" means a coating line in which any protective, decorative, or functional coating is applied onto the surface of a magnet wire.

"Malfunction" means any sudden and unavoidable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation, or any other preventable upset condition or preventable equipment breakdown shall not be considered malfunctions.

"Manufacturing process" means a method whereby a process emission source or series of process emission sources is used to convert raw materials, feed stocks, subassemblies, or other components into a product, either for sale or for use as a component in a subsequent manufacturing process.

"Material Recovery Section" means any equipment designed to transport and recover styrene monomer and other impurities from other products and by-products in a polystyrene plant, including but not limited to the styrene devolatilizer unit and styrene recovery unit.

"Maximum theoretical emissions" means the quantity of volatile organic material emissions that theoretically could be emitted by a stationary source before add-on controls based on the design capacity or maximum production capacity of the source and 8760 hours per year. The design capacity or maximum production capacity includes use of coating(s) or ink(s) with the highest volatile organic material content actually used in practice by the source.

"Metal furniture" means a furniture piece including, but not limited to, tables, chairs, waste baskets, beds, desks, lockers, benches,



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shelving, file cabinets, lamps, and room dividers.

"Metal furniture coating" means any non-adhesive coating applied to any furniture piece made of metal or any metal part which is or will be assembled with other metal, wood, fabric, plastic or glass parts to form a furniture piece including, but not limited to, tables, chairs, waste baskets, beds, desks, lockers, benches, shelving, file cabinets, lamps, and room dividers. This definition shall not apply to any coating line coating miscellaneous metal parts or products.

"Metal furniture coating facility" means a facility that includes one or more metal furniture coating line(s).

"Metal furniture coating line" means a coating line in which any protective, decorative, or functional coating is applied onto the surface of metal furniture.

"Metallic shoe-type seal" means a primary or secondary seal constructed of metal sheets (shoes) which are joined together to form a ring, springs, or levers which attach the shoes to the floating roof and hold the shoes against the tank wall, and a coated fabric which is suspended from the shoes to the floating roof.

"Miscellaneous fabricated product manufacturing process" means:

A manufacturing process involving one or more of the following applications, including any drying and curing of formulations, and capable of emitting VOM:

Adhesives to fabricate or assemble components or products

Asphalt solutions to paper or fiberboard

Asphalt to paper or felt

Coatings or dye to leather

Coatings to plastic

Coatings to rubber or glass

Disinfectant material to manufactured items

Plastic foam scrap or "fluff" from the manufacture of foam containers and packaging material to form resin pallets

Resin solutions to fiber substances

Viscose solutions for food casings

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The storage and handling of formulations associated with the process described above, and the use and handling of organic liquids and other substances for clean-up operations associated with the process described in this definition.

"Miscellaneous formulation manufacturing process" means:

A manufacturing process which compounds one or more of the following and is capable of emitting VOM:

Adhesives

Asphalt solutions

Caulks, sealants, or waterproofing agents

Coatings, other than paint and ink

Concrete curing compounds

Dyes

Friction materials and compounds

Resin solutions

Rubber solutions

Viscose solutions

The storage and handling of formulations associated with the process described above, and the use and handling of organic liquids and other substances for clean-up operations associated with the process described in this definition.

"Miscellaneous metal parts or products" means any metal part or metal product, even if attached to or combined with a nonmetal part or product, except cans, coils, metal furniture, large appliances, magnet wire, large appliances, magnet wire, automobiles, ships, and airplane bodies.

"Miscellaneous metal parts and products coating" means any coating applied to any metal part or metal product, even if attached to or combined with a nonmetal part or product, except cans, coils, metal furniture, large appliances, and magnet wire. Prime coat, prime surfacer coat, topcoat, and final repair coat for automobiles and light-duty trucks are not miscellaneous metal parts and products coatings. However, underbody anti-chip (e.g., underbody plastisol) automobile, and light-duty truck coatings are miscellaneous metal



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parts and products coatings. Also, automobile or light-duty truck refinishing coatings, coatings applied to the exterior of marine vessels, coatings applied to the exterior of airplanes, and the customized topcoating of automobiles and trucks if production is less than 35 vehicles per day are not miscellaneous metal parts and products coatings.

"Miscellaneous metal parts or products coating facility" means a facility that includes one or more miscellaneous metal parts or products coating lines.

"Miscellaneous metal parts or products coating line" means a coating line in which any protective, decorative, or functional coating is applied onto the surface of miscellaneous metal parts or products.

"Miscellaneous organic chemical manufacturing process" means:

A manufacturing process which produces by chemical reaction, one or more of the following organic compounds or mixtures of organic compounds and which is capable of emitting VOM:

Chemicals listed in Appendix A of this section

Chlorinated and sulfonated compounds

Cosmetic, detergent, soap, or surfactant intermediaries or specialties and products

Disinfectants

Food additives

Oil and petroleum product additives

Plasticizers

Resins or polymers

Rubber additives

Sweeteners

Varnishes

The storage and handling of formulations associated with the process described above and the use and handling of organic liquids and other substances for clean-up operations associated with the process described in this definition.

"Monitor" means to measure and record.

"Multiple package coating" means a coating made from more than one different ingredient which must be mixed prior to using and has a limited pot life due to the chemical reaction which occurs upon mixing.

"No Detectable Volatile Organic Material Emissions" means a discharge of volatile organic material into the atmosphere as indicated by an instrument reading of less than 500 ppm above background as determined in accordance with 40 CFR 60.485(c).

"Offset" means, with respect to printing and publishing operations, use of a blanket cylinder to transfer ink from the plate cylinder to the surface to be printed.

"Opaque stains" means all stains that are not semi-transparent stains.

"Open top vapor degreasing" means the batch process of cleaning and removing soils from surfaces by condensing hot solvent vapor on the colder metal parts.

"Open-ended valve" means any valve, except pressure relief devices, having one side of the valve in contact with process fluid and one side open to the atmosphere, either directly or through open piping.

"Operator of Gasoline Dispensing Facility" means any person who is the lessee of or operates, controls or supervises a gasoline dispensing facility.

"Organic compound" means any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate.

"Organic material" means any chemical compound of carbon including diluents and thinners which are liquids at standard conditions and which are used as solvents, viscosity reducers, or cleaning agents, but excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbonic acid, metallic carbide, metallic carbonates, and ammonium carbonate.

"Organic vapor" means the gaseous phase of an organic material or a mixture of organic materials present in the atmosphere.

"Oven" means a chamber within which heat is used for one or more of the following purposes: dry, bake, cure, or polymerize a coating or ink.



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"Overall control" means the product of the capture efficiency and the control device efficiency.

"Overvarnish" means a transparent coating applied directly over ink or coating.

"Owner of Gasoline Dispensing Facility" means any person who has legal or equitable title to a stationary storage tank at a gasoline dispensing facility.

"Owner or operator" means any person who owns, operates, leases, controls, or supervises an emission source or air pollution control equipment.

"Packaging rotogravure printing" means rotogravure printing upon paper, paper board, metal foil, plastic film, and other substrates, which are, in subsequent operations, formed into packaging products or labels for articles to be sold.

"Packaging rotogravure printing line" means a rotogravure printing line in which surface coatings are applied to paper, paperboard, foil, film, or other substrates which are to be used to produce containers, packaging products, or labels for articles.

"Paint manufacturing plant" means a plant that mixes, blends, or compounds enamels, lacquers, sealers, shellacs, stains, varnishes, or pigmented surface coatings.

"Paper coating" means any coating applied on paper, plastic film, or metallic foil to make certain products, including (but not limited to) adhesive tapes and labels, book covers, post cards, office copier paper, drafting paper, or pressure sensitive tapes. Paper coating includes the application of coatings by impregnation and/or saturation.

"Paper coating facility" means a facility that includes one or more paper coating lines.

"Paper coating line" means a coating line in which any protective, decorative, or functional coating is applied on, saturated into, or impregnated into paper, plastic film, or metallic foil to make certain products, including (but not limited to) adhesive tapes and labels, book covers, post cards, office copier paper, drafting paper, and pressure sensitive tapes.

"Parts per million (volume)" means a volume/volume ratio which expresses the volumetric concentration of gaseous air contaminant in a million unit volume of gas.

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"Person" means any individual, corporation, partnership, association, State, municipality, political subdivision of a State; any agency, department, or instrumentality of the United States; and any officer, agent, or employee thereof.

"Petroleum" means the crude oil removed from the earth and the oils derived from tar sands, shale, and coal.

"Petroleum Liquid" means crude oil, condensate or any finished or intermediate product manufactured at a petroleum refinery, but not including Number 2 through Number 6 fuel oils as specified in ASTM D-396-69, gas turbine fuel oils Numbers 2-GT through 4-GT as specified in ASTM D-2880-71 or diesel fuel oils Numbers 2-D and 4-D, as specified in ASTM D-975-68.

"Petroleum refinery" means any facility engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, or other products through distillation of petroleum, or through redistillation, cracking, or reforming of unfinished petroleum derivatives.

"Pharmaceutical" means any compound or mixture, other than food, used in the prevention, diagnosis, alleviation, treatment, or cure of disease in human and animal.

"Pharmaceutical coating operation" means a device in which a coating is applied to a pharmaceutical, including air drying or curing of the coating.

"Photochemically Reactive Material" means any organic material with an aggregate of more than 20 percent of its total volume composed of the chemical compounds classified below or the composition of which exceeds any of the following individual percentage composition limitations. Whenever any photochemically reactive material or any constituent of any organic material may be classified from its chemical structure into more than one of the above groups of organic materials it shall be considered as a member of the most reactive group, that is, the group having the least allowable percent of the total organic materials.

A combination of hydrocarbons, alcohols, aldehydes, esters, ethers or ketones having an olefinic or cyclo-olefinic types of unsaturation: 5 percent. This definition does not apply to perchloroethylene or trichloroethylene.

A combination of aromatic compounds with eight or more carbon atoms to the molecule except ethylbenzene: 8 percent.



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A combination of ethylbenzene, ketones having branched hydrocarbon structures or toluene: 20 percent.

"pigmented coatings" means opaque coatings containing binders and colored pigments which are formulated to conceal the wood surface either as an undercoat or topcoat.

"plant" means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control), except the activities of any marine vessel. Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same "Major Group" (i.e., which have the same two-digit code) as described in the "Standard Industrial Classification Manual, 1987" (incorporated by reference in Section 218.112).

"Plasticizers" means a substance added to a polymer composition to soften and add flexibility to the product.

"Pneumatic Rubber Tire Manufacture" means the production of pneumatic rubber tires with a bead diameter up to but not including 20.0 inches and cross section dimension up to 12.8 inches, but not including specialty tires for antique or other vehicles when produced on equipment separate from normal production lines for passenger or truck type tires.

"Polystyrene Plant" means any plant using styrene to manufacture polystyrene resin.

"Polystyrene Resin" means substance consisting of styrene polymer and additives which is manufactured at a polystyrene plant.

"Pressure Release" means the emission of materials resulting from system pressure being greater than set pressure of the pressure relief device.

"Pressure Tank" means a tank in which fluids are stored at a pressure greater than atmospheric pressure.

"Prime coat" means the first of two or more coatings applied to a surface.

"Prime surfacer coat" means a coating used to touch up areas on the surface of automobile or light-duty truck bodies not adequately covered by the prime coat before application of the top coat. The prime surfacer coat is applied between the prime coat and topcoat. An anti-chip coating applied to main body parts (e.g., rocker panels,

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bottom of doors and fenders, and leading edge of roof) is a prime surfacer coat.

"Primers" means any coatings formulated and applied to substrates to provide a firm bond between the substrate and subsequent coats.

"Printing" means the application of words, designs, and pictures to a substrate using ink.

"Printing line" means an operation consisting of a series of one or more roll printers and any associated roll coaters, drying areas, and ovens wherein one or more coatings are applied, dried, and/or cured.

"Process" means any stationary emission source other than a fuel combustion emission source or an incinerator.

"Process Unit" means components assembled to produce, as intermediate or final products, one or more of the chemicals listed in 35 Ill. Adm. Code 218 Appendix A. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product.

"Process Unit Shutdown" means a work practice or operational procedure that stops production from a process unit or part of a process unit. An unscheduled work practice or operational procedure that stops production from a process unit or part of a process unit for less than 24 hours is not a process unit shutdown. The use of spare components and technically feasible bypassing of components without stopping production is not a process unit shutdown.

"Production equipment exhaust system" means a system for collecting and directing into the atmosphere emissions of volatile organic material from reactors, centrifuges, and other process emission sources.

"Publication rotogravure printing line" means a rotogravure printing line in which coatings are applied to paper which is subsequently formed into books, magazines, catalogues, brochures, directories, newspaper supplements, or other types of printed material.

"Purged Process Fluid" means liquid or vapor from a process unit that contains volatile organic material and that results from flushing or cleaning the sample line(s) of a process unit so that an uncontaminated sample may then be taken for testing or analysis.

"Reactor" means a vat, vessel, or other device in which chemical reactions take place.



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"Reasonably Available Control Technology (RACT)" means the lowest emission limitation that an emission source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility.

"Refiner" means any person who owns, leases, operates, controls, or supervises a refinery.

"Refinery Fuel Gas" means any gas which is generated by a petroleum refinery process unit and which is combusted at the refinery, including any gaseous mixture of natural gas and fuel gas.

"Refinery unit, process unit or unit" means a set of components which are a part of a basic process operation such as distillation, hydrotreating, cracking, or reforming of hydrocarbons.

"Refrigerated condenser" means a surface condenser in which the coolant supplied to the condenser has been cooled by a mechanical device, other than by a cooling tower or evaporative spray cooling, such as refrigeration unit or steam chiller unit.

"Reid vapor pressure" means the standardized measure of the vapor pressure of a liquid in pounds per square inch absolute (Psia) at 100°F (37.8°C).

"Repair coatings" means coatings used to correct imperfections or damage to furniture surface.

"Repaired" means, for the purpose of Subpart Q of this Part, that equipment component has been adjusted, or otherwise altered, to eliminate a leak.

"Residual Fuel Oil" means fuel oils of grade No. 4, 5 and 6 as specified in detailed requirements for fuel oils A.S.T.M. D-396-69 (1971).

"Retail Outlet" means any gasoline dispensing facility at which gasoline is sold or offered for sale for use in motor vehicles.

"Roll coater" means an apparatus in which a uniform layer of coating is applied by means of one or more rolls across the entire width of a moving substrate.

"Roll printer" means an apparatus used in the application of words, designs, or pictures to a substrate, usually by means of one or more rolls each with only partial coverage.

"Roll printing" means the application of words, designs, and pictures to a substrate usually by means of a series of hard rubber or metal

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rolls each with only partial coverage.

"Roller coating" means a method of applying a coating to a sheet or strip in which the coating is transferred by a roller or series of rollers.

"Rotogravure printing" means the application of words, designs, and pictures to a substrate by means of a roll printing technique in which the pattern to be applied is recessed relative to the non-image area.

"Rotogravure printing line" means a printing line in which each roll printer uses a roll with recessed areas for applying an image to a substrate.

"Safety relief valve" means a valve which is normally closed and which is designed to open in order to relieve excessive pressures within a vessel or pipe.

"Sanding sealers" means any coatings formulated for and applied to bare wood for sanding and to seal the wood for subsequent application of varnish. To be considered a sanding sealer a coating must be clearly labelled as such.

"Sealer" means a coating containing binders which seals wood prior to the application of the subsequent coatings.

"Sensor" means a device that measures a physical quantity or the change in a physical quantity such as temperature, pressure, flow rate, pH, or liquid level.

"Semi-transparent stains" means stains containing dyes or semi-transparent pigments which are formulated to enhance wood grain and change the color of the surface but not to conceal the surface, including, but not limited to, sap stain, toner, non-grain raising stains, pad stain, or spatter stain.

"Set of safety relief valves" means one or more safety relief valves designed to open in order to relieve excessive pressures in the same vessel or pipe.

"Sheet basecoat" means a coating applied to metal when the metal is in sheet form to serve as either the exterior or interior of a can for either two-piece or three-piece cans.

"Side-seam spray coat" means a coating applied to the seam of a three-piece can.



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"Single coat" means one coating application applied to a metal surface.

"Solvent" means a liquid substance that is used to dissolve or dilute another substance.

"Solvent cleaning" means the process of cleaning soils from surfaces by cold cleaning, open top vapor degreasing, or conveyORIZED degreasing.

"Specified air contaminant" means any air contaminant as to which this Part contains emission standards or other specific limitations.

"Splash loading" means a method of loading a tank, railroad tank car, tank truck, or trailer by use of other than a submerged loading pipe.

"Stack" means a flue or conduit, free-standing or with exhaust port above the roof of the building on which it is mounted, by which air contaminants are emitted into the atmosphere.

"Standard conditions" means a temperature of 70°F and a pressure of 14.7 psia.

"Standard cubic foot (scf)" means the volume of one cubic foot of gas at standard conditions.

"Standard Industrial Classification Manual" means the Standard Industrial Classification Manual (1987), Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402 (incorporated by reference in Section 218.112).

"Start-up" means the setting in operation of an emission source for any purpose.

"Stationary emission source" and "Stationary source" mean an emission source which is not self-propelled.

"Storage tank or storage vessel" means any stationary tank, reservoir or container used for the storage of VOL.

"Styrene Devolatilizer Unit" means equipment performing the function of separating unreacted styrene monomer and other volatile components from polystyrene in a vacuum devolatilizer.

"Styrene Recovery Unit" means equipment performing the function of separating styrene monomer from other less volatile components of the styrene devolatilizer unit's output. The separated styrene monomer may be reused as a raw material in the polystyrene plant.

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"Submerged loading pipe" means any discharge pipe or nozzle which meets either of the following conditions:

Where the tank is filled from the top, the end of the discharge pipe or nozzle must be totally submerged when the liquid level is 15 cm (6 in.) above the bottom of the tank.

Where the tank is filled from the side, the discharge pipe or nozzle must be totally submerged when the liquid level is 46 cm (18 in.) above the bottom of the tank.

"Substrate" means the surface onto which a coating is applied or into which a coating is impregnated.

"Surface condenser" means a device which removes a substance from a gas stream by reducing the temperature of the stream, without direct contact between the coolant and the stream.

"Synthetic Organic Chemical or Polymer Manufacturing Plant" means a plant that produces, as intermediates or final products, one or more of the chemicals or polymers listed in 35 Ill. Adm. Code 218 Appendix A.

"Tablet coating operation" means a pharmaceutical coating operation in which tablets are coated.

"Thirty-day rolling average" means any value arithmetically averaged over any consecutive thirty-days.

"Three-piece can" means a can which is made from a rectangular sheet and two circular ends.

"Topcoat" means a coating applied in a multiple coat operation other than prime coat, final repair coat, or prime surfacer coat.

"Topcoat operation" means all topcoat spray booths, flash-off areas, and bake ovens at a facility which are used to apply, dry, or cure the final coatings (except final off-line repair) on components of automobile or light-duty truck bodies.

"Transfer efficiency" means the ratio of the amount of coating solids deposited onto a part or product to the total amount of coating solids used.

"Tread End Cementing" means the application of a solvent-based cement to the tire tread ends.

"True vapor pressure" means the equilibrium partial pressure exerted by a volatile organic liquid as determined in accordance with methods



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described in American Petroleum Institute Bulletin 2517, "Evaporation Loss From Floating Roof Tanks," second edition, February 1980 (incorporated by reference in Section 218.112).

"Turnaround" means the procedure of shutting down an operating refinery unit, emptying gaseous and liquid contents to do inspection, maintenance and repair work, and putting the unit back into production.

"Two-piece can" means a can which is drawn from a shallow cup and requires only one end to be attached.

"Undercoaters" means any coatings formulated for and applied to substrates to provide a smooth surface for subsequent coats.

"Undertread Cementing" means the application of a solvent-based cement to the underside of a tire tread.

"Unregulated safety relief valve" means a safety relief valve which cannot be actuated by a means other than high pressure in the pipe or vessel which it protects.

"Vacuum producing system" means any reciprocating, rotary, or centrifugal blower or compressor or any jet ejector or device that creates suction from a pressure below atmospheric and discharges against a greater pressure.

"Valves not externally regulated" means valves that have no external controls, such as in-line check valves.

"Vapor balance system" means any combination of pipes or hoses which creates a closed system between the vapor spaces of an unloading tank and a receiving tank such that vapors displaced from the receiving tank are transferred to the tank being unloaded.

"Vapor collection system" means all piping, seals, hoses, connections, pressure-vacuum vents, and other possible sources between the gasoline delivery vessel and the vapor processing unit and/or the storage tanks and vapor holder.

"Vapor control system" means any system that limits or prevents release to the atmosphere of organic material in the vapors displaced from a tank during the transfer of gasoline.

"Vapor-Mounted Primary Seal" means a primary seal mounted with an air space bounded by the bottom of the primary seal, the tank wall, the liquid surface and the floating roof.

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"Vapor recovery system" means a vapor gathering system capable of collecting all VOM vapors and gases discharged from the storage tank and a vapor disposal system capable of processing such VOM vapors and gases so as to prevent their emission to the atmosphere.

"Vehicle" means a device by which any person or property may be propelled, moved, or drawn upon a highway, excepting a device moved exclusively by human power or used exclusively upon stationary rails or tracks.

"Vinyl coating" means any topcoat or printing ink applied to vinyl coated fabric or vinyl sheets. Vinyl coating does not include plastisols.

"Vinyl coating facility" means a facility that includes one or more vinyl coating line(s).

"Vinyl coating line" means a coating line in which any protective, decorative or functional coating is applied onto vinyl coated fabric or vinyl sheets.

"Volatile organic liquid" means any substance which is liquid at storage conditions and which contains volatile organic compounds.

"Volatile organic material (VOM) or volatile organic compound (VOC)" means any organic compound which participates in atmospheric photochemical reactions. This includes any organic compound other than the following compounds: methane, ethane, methyl chloroform (1,1,1-trichloroethane), CFC-113 (trichlorotrifluoroethane), methylene chloride (dichloromethane), CFC-11 (trichlorofluoromethane), CFC-12 (dichlorodifluoromethane), CFC-22 (chlorodifluoromethane), FC-23 (trifluoromethane), CFC-114 (dichlorotetrafluoroethane), CFC-115 (chloropentafluoroethane), HCFC-123 (dichlorotrifluoroethane), HFC-134a (tetrafluoroethane), HCFC-141b (dichlorofluoroethane) and HCFC-142b (chlorodifluoroethane). These compounds have been determined to have negligible photochemical reactivity.

In addition, for the 3M Bedford Park facility in Cook County, the following compounds shall not be considered as volatile organic material or volatile organic compounds (and are, therefore, to be treated as water for the purpose of calculating the "less water" part of the coating or ink composition) for a period of time not to exceed one year after the date USEPA acts on 3M's petition, pending as of the date of promulgation of this rule, which seeks to have these compounds classified as exempt compounds: (1) cyclic, branched, or linear, completely fluorinated alkanes, (2) cyclic, branched, or linear, completely fluorinated ethers with no unsaturations, (3) cyclic, branched, or linear, completely fluorinated tertiary amines



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with no unsaturations, and (4) sulfur containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine.

For purposes of determining compliance with emission limits, VOC will be measured by the approved test methods. Where such a method also inadvertently measures compounds with negligible photochemical reactivity, an owner or operator may exclude these negligibly reactive compounds when determining compliance with an emissions standard.

"Volatile Petroleum Liquid" means any petroleum liquid with a true vapor pressure that is greater than 1.5 psia (78 millimeters of mercury) at standard conditions.

"Wash coat" means a coating containing binders which seals wood surfaces, prevents undesired staining, and controls penetration.

"Wastewater (Oil/Water) Separator" means any device or piece of equipment which utilizes the difference in density between oil and water to remove oil and associated chemicals of water, or any device, such as a flocculation tank or a clarifier, which removes petroleum derived compounds from waste water.

"Web" means a substrate which is printed in continuous roll-fed presses.

"Wood furniture" means room furnishings including cabinets (kitchen, bath, and vanity), tables, chairs, beds, sofas, shutters, art objects, wood paneling, wood flooring, and any other coated furnishings made of wood, wood composition, or fabricated wood materials.

"Wood furniture coating facility" means a facility that includes one or more wood furniture coating line(s).

"Wood furniture coating line" means a coating line in which any protective, decorative, or functional coating is applied onto wood furniture.

"Woodworking" means the shaping, sawing, grinding, smoothing, polishing, and making into products of any form or shape of wood.

## Section 218.105 Testing Methods and Procedures

## a) Coatings, Inks and Fountain Solutions

The following test methods and procedures shall be used to determine compliance of applied coatings, inks, and fountain solutions with the

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Limitations set forth in this Part.

- 1) Sampling: Samples collected for analyses shall be one-liter taken into a one-liter container at a location and time such that the sample will be representative of the coating as applied (i.e., the sample shall include any dilution solvent or other VOM added during the manufacturing process). The container must be tightly sealed immediately after the sample is taken. Any solvent or other VOM added after the sample is taken must be measured and accounted for in the calculations in subsection (a)(3). For multiple package coatings, separate samples of each component shall be obtained. A mixed sample shall not be obtained as it will cure in the container. Sampling procedures shall follow the guidelines presented in:

- A) ASTM D3925-81(1985) standard practice for sampling liquid paints and related pigment coating. This practice is incorporated by reference in Section 218.112.

- B) ASTM E300-86 standard practice for sampling industrial chemicals. This practice is incorporated by reference in Section 218.112.

- 2) Analyses: The applicable analytical methods specified below shall be used to determine the composition of coatings, inks, or fountain solutions as applied.

- A) Method 24 of 40 CFR 60, Appendix A, incorporated by reference in Section 218.112, shall be used to determine the VOM content and density of coatings. If it is demonstrated to the satisfaction of the Agency and the USEPA that plant coating formulation data are equivalent to Method 24 results, formulation data may be used. In the event of any inconsistency between a Method 24 test and a facility's formulation data, the Method 24 test will govern.

- B) Method 24A of 40 CFR Part 60, Appendix A, incorporated by reference in Section 218.112, shall be used to determine the VOM content and density of rotogravure printing inks and related coatings. If it is demonstrated to the satisfaction of the Agency and USEPA that the plant coating formulation data are equivalent to Method 24A results, formulation data may be used. In the event of any inconsistency between a Method 24A test and a facility's formulation data, the Method 24A test will govern.

- C) The following ASTM methods are the analytical procedures for determining VOM:



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- i) ASTM D1475-85: Standard test method for density of paint, varnish, lacquer and related products. This test method is incorporated by reference in Section 218.112.
- ii) ASTM D2369-87: Standard test method for volatile content of a coating. This test method is incorporated by reference in Section 218.112.
- iii) ASTM D3792-86: Standard test method for water content of water-reducible paints by direct injection into a gas chromatograph. This test method is incorporated by reference in Section 218.112.
- iv) ASTM D4017-81(1987): Standard test method for water content in paints and paint materials by the Karl Fischer method. This test method is incorporated by reference in Section 218.112.
- v) ASTM D4457-85: Standard test method for determination of dichloromethane and 1,1,1, trichloroethane in paints and coatings by direct injection into a gas chromatograph. (The procedure delineated above can be used to develop protocols for any compounds specifically exempted from the definition of VOM.) This test method is incorporated by reference in Section 218.112.
- vi) ASTM D2697-86: Standard test method for volume non-volatile matter in clear or pigmented coatings. This test method is incorporated by reference in Section 218.112.
- vii) ASTM D3980-87: Standard practice for interlaboratory testing of paint and related materials. This practice is incorporated by reference in Section 218.112.
- viii) ASTM E180-85: Standard practice for determining the precision data of ASTM methods for analysis of and testing of industrial chemicals. This practice is incorporated by reference in Section 218.112.
- ix) ASTM D2372-85: Standard method of separation of vehicle from solvent-reducible paints. This method is incorporated by reference in Section 218.112.
- D) Use of an adaptation to any of the analytical methods specified in subsections (a)(2)(A), (B), and (C) may not be used unless approved by the Agency and USEPA. An owner or

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operator must submit sufficient documentation for the Agency and USEPA to find that the analytical methods specified in subsections (a)(2)(A), (B), and (C) will yield inaccurate results and that the proposed adaptation is appropriate.

- 3) Calculations: Calculations for determining the VOM content, water content and the content of any compounds which are specifically exempted from the definition of VOM of coatings, inks and fountain solutions as applied shall follow the guidance provided in the following documents.
- A) "A Guide for Surface Coating Calculation", EPA-340/1-86-016, incorporated by reference in Section 218.112.
- B) "Procedures for Certifying Quantity of Volatile Organic Compounds Emitted by Paint, Ink and Other Coatings" (revised June 1986), EPA-450/3-84-019, incorporated by reference in Section 218.112.
- C) "A Guide for Graphic Arts Calculations", August 1988, EPA-340/1-88-003, incorporated by reference in Section 218.112.
- b) Automobile or Light-Duty Truck Test Protocol
- The protocol for testing, including determining the transfer efficiency, of coating applicators at topcoat coating operations at an automobile assembly facility shall follow the procedure in: "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Topcoat Operations", December 1988, EPA-450/3-88-018, incorporated by reference in Section 218.112.
- c) Capture System Efficiency Test Protocols
- 1) Applicability
- The requirements of subsection (c)(2) shall apply to all VOM emitting processes employing capture equipment (e.g., hoods, ducts), except those cases noted below.
- A) If a source installs a permanent total enclosure (PTE) that meets Agency and USEPA specifications, and which directs all VOM to a control device, then the source is exempted from the requirements described in subsection (c)(2). The Agency and USEPA specifications to determine whether a structure is considered a PTE are given in Procedure T of



Appendix B of this Part. In this instance, the capture efficiency is assumed to be 100 percent and the source is still required to measure control efficiency using appropriate test methods as specified in subsection (d).

- B) If a source uses a control device designed to collect and recover VOM (e.g., carbon adsorber), an explicit measurement of capture efficiency is not necessary provided that the conditions given below are met. The overall control of the system can be determined by directly comparing the input liquid VOM to the recovered liquid VOM. The general procedure for use in this situation is given in 40 CFR 60.433, incorporated by reference in Section 218.112, with the following additional restrictions:

- i) The source must be able to equate solvent usage with solvent recovery on a 24-hour (daily) basis, rather than a 30-day weighted average, within 72 hours following the 24-hour period. In addition, one of the following two criteria must be met:
  - ii) The solvent recovery system (i.e., capture and control system) must be dedicated to a single process line (e.g., one process line venting to a carbon adsorber system), or
  - iii) If the solvent recovery system controls multiple process lines, then the source must be able to demonstrate that the overall control (i.e., the total recovered solvent VOM divided by the sum of liquid VOM input to all process lines venting to the control system) meets or exceeds the most stringent standard applicable for any process line venting to the control system.

## 2). Specific Requirements

The capture efficiency of a process line shall be measured using one of the four protocols given below. Any error margin associated with a test protocol may not be incorporated into the results of a capture efficiency test. If these techniques are not suitable for a particular process, then the source may use an alternative capture efficiency protocol, provided that the alternative protocol is approved by the Agency and approved by the USEPA as a SIP revision.

- A) Gas/gas method using temporary total enclosure (TTE). The Agency and USEPA specifications to determine whether a temporary enclosure is considered a TTE are given in

Procedure T of Appendix B of this Part. The capture efficiency equation to be used for this protocol is:

$$CE = Gw / (Gw + Fw)$$

where: CE = capture efficiency, decimal fraction

Gw = mass of VOM captured and delivered to control device using a TTE

Fw = mass of fugitive VOM that escapes from a TTE  
 Procedure G.2 contained in Appendix B of this Part is used to obtain Gw. Procedure F.1 in Appendix B of this Part is used to obtain Fw.

- B) Liquid/gas method using TTE. The Agency and USEPA specifications to determine whether a temporary enclosure is considered a TTE are given in Procedure T of Appendix B of this Part. The capture efficiency equation to be used for this protocol is:

$$CE = (L - F) / L$$

where: CE = capture efficiency, decimal fraction

L = mass of liquid VOM input to process

Fw = mass of fugitive VOM that escapes from a TTE

Procedure L contained in Appendix B of this Part is used to obtain L. Procedure F.1 in Appendix B of this Part is used to obtain Fw.

- C) Gas/gas method using the building or room (building or room enclosure) in which the affected source is located as the enclosure and in which "F" and "G" are measured while operating only the affected facility. All fans and blowers in the building or room must be operated as they would under normal production. The capture efficiency equation to be used for this protocol is:

$$CE = G / (G + F_B)$$

where: CE = capture efficiency, decimal fraction

G = mass of VOM captured and delivered to control device



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$F_a$  = mass of fugitive VOM that escapes from building enclosure

Procedure G.2 contained in Appendix B of this Part is used to obtain  $G$ . Procedure F.2 in Appendix B of this Part is used to obtain  $F_a$ .

- D) Liquid/gas method using the building or room (building or room enclosure) in which the affected source is located as the enclosure and in which "F" and "L" are measured while operating only the affected facility. All fans and blowers in the building or room must be operated as they would under normal production. The capture efficiency equation to be used for this protocol is:

$$CE = (L - F_a)/L$$

where: CE = capture efficiency, decimal fraction

L = mass of liquid VOM input to process

$F_a$  = mass of fugitive VOM that escapes from building enclosure

Procedure L contained in Appendix B of this section is used to obtain L. Procedure F.2 in Appendix B of this section is used to obtain  $F_a$ .

## 3) Recordkeeping and Reporting

- A) All affected facilities must maintain a copy of the capture efficiency protocol submitted to the Agency and the USEPA on file. All results of the appropriate test methods and capture efficiency protocols must be reported to the Agency within sixty (60) days of the test date. A copy of the results must be kept on file with the source for a period of three (3) years.
- B) If any changes are made to capture or control equipment, then the source is required to notify the Agency and the USEPA of these changes and a new test may be required by the Agency or the USEPA.
- C) The source must notify the Agency 30 days prior to performing any capture efficiency or control test. At that time, the source must notify the Agency which capture efficiency protocol and control device test methods will be used.

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- D) Sources utilizing a PTE must demonstrate that this enclosure meets the requirement given in Procedure T (in Appendix B of this Part) for a PTE during any testing of their control device.
- E) Sources utilizing a TTE must demonstrate that their TTE meets the requirements given in Procedure T (in Appendix B of this Part) for a TTE during testing of their control device. The source must also provide documentation that the quality assurance criteria for a TTE have been achieved.

## d) Control Device Efficiency Testing and Monitoring

- 1) The control device efficiency shall be determined by simultaneously measuring the inlet and outlet gas phase VOM concentrations and gas volumetric flow rates in accordance with the gas phase test methods specified in subsection (f).
- 2) Any owner or operator that uses an afterburner or carbon adsorber to comply with any Section of this Part shall use USEPA approved continuous monitoring equipment which is installed, calibrated, maintained, and operated according to vendor specifications at all times the afterburner or carbon adsorber is in use. The continuous monitoring equipment must monitor the following parameters:

- A) Combustion chamber temperature of each afterburner.
- B) Temperature rise across each catalytic afterburner bed or VOM concentration of exhaust.
- C) The VOM concentration of each carbon adsorption bed exhaust.

## e) Overall Efficiency

- 1) The overall efficiency of the emission control system shall be determined as the product of the capture system efficiency and the control device efficiency or by the liquid/liquid test protocol as specified in 40 CFR 60.433, incorporated by reference in Section 218.112, (and revised by subsection (c)(1)(B) for each solvent recovery system. In those cases in which the overall efficiency is being determined for an entire line, the capture efficiency used to calculate the product of the capture and control efficiency is the total capture efficiency over the entire line.
- 2) For coating lines which are both chosen by the owner or operator to comply with Section 218.207(a), (d), (e), (f), or (g) by the alternative in Section 218.207(b)(2) and meet the criteria



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allowing them to comply with Section 218.207 instead of Section 218.204, the overall efficiency of the capture system and control device, as determined by the test methods and procedures specified in subsections (c), (d) and (e)(1), shall be no less than the equivalent overall efficiency which shall be calculated by the following equation:

$$E = (VOM_s - VOM_l / VOM_s) \times 100$$

where:

E = Equivalent overall efficiency of the capture system and control device as a percentage,

VOM<sub>s</sub> = Actual VOM content of a coating, or the daily-weighted average VOM content of two or more coatings (if more than one coating is used), as applied to the subject coating line as determined by the applicable test methods and procedures specified in subsection (a) in units of kg VOM/l (lb VOM/gal) of coating solids as applied,

VOM<sub>l</sub> = The VOM emission limit specified in Section 218.207(a) or (b) in units of kg VOM/l (lb VOM/gal) of coating solids as applied.

f) Volatile Organic Material Gas Phase Source Test Methods

The methods in 40 CFR Part 60, Appendix A, incorporated by reference in Section 218.112 delineated below shall be used to determine control device efficiencies.

- 1) 40 CFR Part 60, Appendix A, Method 18, 25 or 25A, incorporated by reference in Section 218.112 as appropriate to the conditions at the site, shall be used to determine VOM concentration. Method selection shall be based on consideration of the diversity of organic species present and their total concentration and on consideration of the potential presence of interfering gases. Except as indicated in subsections (f)(1)(A) and (B) below, the test shall consist of three separate runs, each lasting a minimum of 60 min, unless the Agency and the USEPA determine that process variables dictate shorter sampling times.

A) When the method is to be used to determine the efficiency of a carbon adsorption system with a common exhaust stack for all the individual adsorber vessels, the test shall consist of three separate runs, each coinciding with one or

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more complete sequences through the adsorption cycles of all the individual adsorber vessels.

- B) When the method is to be used to determine the efficiency of a carbon adsorption system with individual exhaust stacks for each adsorber vessel, each adsorber vessel shall be tested individually. The test for each adsorber vessel shall consist of three separate runs. Each run shall coincide with one or more complete adsorption cycles.

- 2) 40 CFR Part 60, Appendix A, Method 1 or 1A, incorporated by reference in Section 218.112, shall be used for sample and velocity traverses.

- 3) 40 CFR Part 60, Appendix A, Method 2, 2A, 2C or 2D, incorporated by reference in Section 218.112, shall be used for velocity and volumetric flow rates.

- 4) 40 CFR Part 60, Appendix A, Method 3, incorporated by reference in Section 218.112, shall be used for gas analysis.

- 5) 40 CFR Part 60, Appendix A, Method 4, incorporated by reference in Section 218.112, shall be used for stack gas moisture.

- 6) 40 CFR Part 60, Appendix A, Methods 2, 2A, 2C, 2D, 3 and 4, incorporated by reference in Section 218.112, shall be performed, as applicable, at least twice during each test run.

- 7) Use of an adaptation to any of the test methods specified in subsections (f)(1), (2), (3), (4), (5) and (6) may not be used unless approved by the Agency and the USEPA. An owner or operator must submit sufficient documentation for the Agency and the USEPA to find that the test methods specified in subsections (f)(1), (2), (3), (4), (5) and (6) will yield inaccurate results and that the proposed adaptation is appropriate.

g) Leak Detection Methods for Volatile Organic Material

Owners or operators required by this Part to carry out a leak detection monitoring program shall comply with the following requirements:

- 1) Leak Detection Monitoring

- A) Monitoring shall comply with 40 CFR 60, Appendix A, Method 21, incorporated by reference in Section 218.112.

- B) The detection instrument shall meet the performance criteria of Method 21.



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- C) The instrument shall be calibrated before use on each day of its use by the methods specified in Method 21.
- D) Calibration gases shall be:
- i) Zero air (less than 10ppm of hydrocarbon in air); and
  - ii) A mixture of methane or n-hexane and air at a concentration of approximately, but no less than, 10,000 ppm methane or n-hexane.
- E) The instrument probe shall be traversed around all potential leak interfaces as close to the interface as possible as described in Method 21.
- 2) When equipment is tested for compliance with no detectable emissions as required, the test shall comply with the following requirements:
- A) The requirements of subsections (g)(1)(A) through (g)(1)(E) above shall apply.
  - B) The background level shall be determined as set forth in Method 21.
  - 3) Leak detection tests shall be performed consistent with:
    - A) "API Course SI 417 controlling Volatile Organic Compound Emissions from Leaking Process Equipment", EPA-450/2-82-015, incorporated by reference in Section 218.112.
    - B) "Portable Instrument User's Manual for Monitoring VOC Sources", EPA-340/1-86-015, incorporated by reference in Section 218.112.
    - C) "Protocols for Generating Unit-Specific Emission Estimates for Equipment Leaks of VOC and VHAP", EPA-450/3-88-010, incorporated by reference in Section 218.112.
    - D) "Petroleum Refinery Enforcement Manual", EPA-340/1-80-008, incorporated by reference in Section 218.122.
- h) Bulk Gasoline Delivery System Test Protocol
- 1) The method for determining the emissions of gasoline from a vapor recovery system are delineated in 40 CFR 60, Subpart XX, Section 60.503, incorporated by reference in Section 218.112.

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- 2) Other tests shall be performed consistent with:
- A) "Inspection Manual for Control of Volatile Organic Emissions from Gasoline Marketing Operations: Appendix D", EPA-340/1-80-012, incorporated by reference in Section 218.112.
  - B) "Control of Hydrocarbons from Tank Truck Gasoline Loading Terminals: Appendix A", EPA-450/2-77-026, incorporated by reference in Section 218.112.
- Section 218.106 Compliance Dates
- a) Compliance with the requirements of all rules is required by July 1, 1991, or sixty days after a final decision by a federal court of the general appeal of the FIP (Illinois Environmental Regulatory Group v. USEPA, No. 90-2778 (and consolidated cases) (7th Cir.)), whichever is later, consistent with the provisions of Section 218.103.
  - b) Compliance with the requirements of provisions of this Part specifically applicable to a category of sources which is the same as any of the individual appeals of the FIP shall be required by July 1, 1991, or sixty days following a final decision by a federal court of the appeal of the FIP impacting the specific category of sources, whichever is later, consistent with the provisions of Section 218.103.
- Section 218.107 Afterburners
- The operation of any natural gas fired afterburner and capture system used to comply with this Part is not required during the period of November 1 of any year to April 1 of the following year provided that the operation of such devices is not required for purposes of occupational safety or health, or for the control of toxic substances, odor nuisances, or other regulated pollutants.
- Section 218.108 Exemptions, Variations, and Alternative Means of Control or Compliance Determinations
- Notwithstanding the provisions of any other Sections of this Part, any exemptions, variations or alternatives to the control requirements, emission limitations, or test methods set forth in this Part shall be effective only when approved by the Agency and approved by the USEPA as a SIP revision.
- Section 218.109 Vapor Pressure of Volatile Organic Liquids
- a) If the VOL consists of only a single compound, the vapor pressure shall be determined by ASTM Method D2879-86 (incorporated by reference in Section 218.112) or the vapor pressure may be obtained



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from a published source such as: Boublik, T., V. Fried and E. Hala, "The Vapor Pressure of Pure Substances," Elsevier Scientific Publishing Co., New York (1973); Perry's Chemical Engineer's Handbook, McGraw-Hill Book Company (1984); CRC Handbook of Chemistry and Physics, Chemical Rubber Publishing Company (1986-87); and Lange's Handbook of Chemistry, John A. Dean, editor, McGraw-Hill Book Company (1985).

- b) If the VOL is a mixture, the vapor pressure shall be determined by ASTM Method D2879-86 (incorporated by reference in Section 218.112) or by the following equation:

$$P_{vol} = \sum_{i=1}^n P_i X_i$$

where:

$P_{vol}$  = Total vapor pressure of the mixture,

$n$  = Number of components in the mixture,

$i$  = Subscript denoting an individual component,

$P_i$  = Vapor pressure of a component determined in accordance with Subpart A of this Part

$X_i$  = Mole fraction of the component in the total mixture.

## Section 218.110 Vapor Pressure of Organic Material or Solvent

- a) If the organic material or solvent consists of only a single compound, the vapor pressure shall be determined by ASTM Method D2879-86 (incorporated by reference in Section 218.112) or the vapor pressure may be obtained from a published source such as: Boublik, T., V. Fried and E. Hala, "The Vapor Pressure of Pure Substances," Elsevier Scientific Publishing Co., New York (1973); Perry's Chemical Engineer's Handbook, McGraw-Hill Book Company (1984); CRC Handbook of Chemistry and Physics, Chemical Rubber Publishing Company (1986-87); and Lange's Handbook of Chemistry, John A. Dean, editor, McGraw-Hill Book Company (1985).

- b) If the organic material or solvent is in a mixture made up of both organic material compounds and compounds which are not organic material, the vapor pressure shall be determined by the following equation:

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$$P_{om} = \sum_{i=1}^n P_i X_i$$

where:

$P_{om}$  = Total vapor pressure of the portion of the mixture which is composed of organic material,

$n$  = Number of organic material components in the mixture,

$i$  = Subscript denoting an individual component,

$P_i$  = Vapor pressure of an organic material component determined in accordance with Subpart A of this Part,

$X_i$  = Mole fraction of the organic material component of the total mixture.

- c) If the organic material or solvent is in a mixture made up of only organic material compounds, the vapor pressure shall be determined by ASTM Method D2879-86 (incorporated by reference in Section 218.112) or by the above equation.

## Section 218.111 Vapor Pressure of Volatile Organic Material

- a) If the VOM consists of only a single compound, the vapor pressure shall be determined by ASTM Method D2879-86 (incorporated by reference in Section 218.112) or the vapor pressure may be obtained from a published source such as: Boublik, T., V. Fried and E. Hala, "The Vapor Pressure of Pure Substances," Elsevier Scientific Publishing Co., New York (1973); Perry's Chemical Engineer's Handbook, McGraw-Hill Book Company (1984); CRC Handbook of Chemistry and Physics, Chemical Rubber Publishing Company (1986-87); and Lange's Handbook of Chemistry, John A. Dean, editor, McGraw-Hill Book Company (1985).

- b) If the VOM is in a mixture made up of both VOM compounds and compounds which are not VOM, the vapor pressure shall be determined by the following equation:

$$P_{vom} = \sum_{i=1}^n P_i X_i$$

$$\sum_{i=1}^n X_i$$



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where:

$P_{vom}$  = Total vapor pressure of the portion of the mixture which is composed of VOM,

$n$  = Number of VOM components in the mixture,

$i$  = Subscript denoting an individual component,

$P_i$  = Vapor pressure of a VOM component determined in accordance with Subpart A of this Part,

$X_i$  = Mole fraction of the VOM component of the total mixture.

- c) If the VOM is in a mixture made up of only VOM compounds, the vapor pressure shall be determined by ASTM Method D2879-86 (incorporated by reference in Section 218.112) or by the above equation.

## Section 218.112 Incorporations by Reference

The following materials are incorporated by reference:

- a) American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103:

- 1) ASTM D2879-86
- 2) ASTM D323-82
- 3) ASTM D86-82
- 4) ASTM D-369-69 (1971)
- 5) ASTM D-396-69
- 6) ASTM D2880-71
- 7) ASTM D-975-68
- 8) ASTM D3925-81 (1985)
- 9) ASTM E300-86
- 10) ASTM D1475-85
- 11) ASTM D2369-87
- 12) ASTM D3792-86
- 13) ASTM D4017-81 (1987)
- 14) ASTM D4457-85
- 15) ASTM D2697-86
- 16) ASTM D3980-87
- 17) ASTM E180-85
- 18) ASTM D2372-85
- 19) ASTM D97-66
- 20) ASTM E-168
- 21) ASTM E-169
- 22) ASTM E-260
- 23) ASTM D2504-83
- 24) ASTM D2382-83

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- b) Standard Industrial Classification Manual, published by Executive Office of the President, Office of Management and Budget, Washington, D.C., 1987.
- c) American Petroleum Institute Bulletin 2517, "Evaporation Loss From Floating Roof Tanks", Second ed., February, 1980.
- d) 40 CFR 60 (July 1, 1990).
- e) 40 CFR 61 (July 1, 1990).
- f) 40 CFR 50 (July 1, 1989).
- g) 40 CFR 51 (July 1, 1989).
- h) 40 CFR 52 (July 1, 1989).
- i) United States Environmental Protection Agency, Washington, D.C., EPA-340/1-86-016.
- j) United States Environmental Protection Agency, Washington D.C., EPA-450/3-84-019.
- k) United States Environmental Protection Agency, Washington D.C., EPA-340/1-88-003.
- l) United States Environmental Protection Agency, Washington D.C., EPA-450/3-88-018.
- m) United States Environmental Protection Agency, Washington, D.C., EPA-450/2-78-029.
- n) United States Environmental Protection Agency, Washington, D.C., EPA-450/2-78-051.
- o) United States Environmental Protection Agency, Washington, D.C., EPA-450/3-82-009.

## SUBPART B: ORGANIC EMISSIONS FROM STORAGE AND LOADING OPERATIONS

## Section 218.121 Storage Containers

No person shall cause or allow the storage of any VOL with a vapor pressure of 17.24 kPa (2.5 psia) or greater at 294.3 K (70°F) or any gaseous organic material in any stationary tank, reservoir or other container of more than 151 cubic meters (40,000 gal) capacity unless such tank, reservoir or other container:



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- a) Is a pressure tank capable of withstanding the vapor pressure of such liquid or the pressure of the gas, so as to prevent vapor or gas loss to the atmosphere at all times; or,
- b) Is designed and equipped with one of the following vapor loss control devices:

1) A floating roof which rests on the surface of the VOL and is equipped with a closure seal or seals between the roof edge and the tank wall. Such floating roof shall not be permitted if the VOL has a vapor pressure of 86.19 kPa (12.5 psia) or greater at 294.3°K (70°F). No person shall cause or allow the emission of air contaminants into the atmosphere from any gauging or sampling devices attached to such tanks, except during sampling or maintenance operations.

2) A vapor recovery system consisting of:

A) A vapor gathering system capable of collecting 85% or more of the uncontrolled VOM that would be otherwise emitted to the atmosphere; and,

B) A vapor disposal system capable of processing such VOM so as to prevent its emission to the atmosphere. No person shall cause or allow the emission of air contaminants into the atmosphere from any gauging or sampling devices attached to such tank, reservoir or other container except during sampling.

3) Other equipment or means of equal efficiency approved by the Agency according to the provisions of 35 Ill. Adm. Code 201, and further processed consistent with Section 218.108.

## Section 218.122 Loading Operations

a) No person shall cause or allow the discharge of more than 3.6 kg/hr (8 lbs/hr) of organic material into the atmosphere during the loading of any organic material from the aggregate loading pipes of any loading facility having through-put of greater than 151 cubic meters per day (40,000 gal/day) into any railroad tank car, tank truck or trailer unless such loading facility is equipped with submerged loading pipes, submerged fill or a device that is equally effective in controlling emissions and is approved by the Agency according to the provisions of 35 Ill. Adm. Code 201, and further processed consistent with Section 218.108.

b) No person shall cause or allow the loading of any organic material into any stationary tank having a storage capacity of greater than

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946 l (250 gal), unless such tank is equipped with a permanent submerged loading pipe, submerged fill or an equivalent device approved by the Agency according to the provisions of 35 Ill. Adm. Code 201, and further processed consistent with Section 218.108, or unless such tank is a pressure tank as described in Section 218.121(a) or is fitted with a recovery system as described in Section 218.121(b)(2).

c) Exception: If no odor nuisance exists the limitations of this Section shall only apply to the loading of VOL with a vapor pressure of 17.24 kPa (2.5 psia) or greater at 294.3°K (70°F).

## Section 218.123 Petroleum Liquid Storage Tanks

a) The requirements of subsection (b) shall not apply to any stationary storage tank:

1) Equipped before January 1, 1979 with one of the vapor loss control devices specified in Section 218.121(b), except Section 218.121(b)(1);

2) With a capacity of less than 151.42 cubic meters (40,000 gal);

3) With a capacity of less than 1,600 cubic meters (422,400 gal) and used to store produced crude oil and condensate prior to custody transfer;

4) With a capacity of less than 1,430 cubic meters (378,000 gal) and used to store produced oil or condensate in crude oil gathering;

5) Subject to new source performance standards for storage vessels of petroleum liquid, 35 Ill. Adm. Code 230;

6) In which volatile petroleum liquid is not stored; or

7) Which is a pressure tank as described in Section 218.121(a).

b) Subject to subsection (a) no owner or operator of a stationary storage tank shall cause or allow the storage of any volatile petroleum liquid in the tank unless:

1) The tank is equipped with one of the vapor loss control devices specified in Section 218.121(b);

2) There are no visible holes, tears or other defects in the seal or any seal fabric or material of any floating roof;



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3) All openings of any floating roof deck, except stub drains, are equipped with covers, lids or seals such that:

- A) The cover, lid or seal is in the closed position at all times except when petroleum liquid is transferred to or from the tank;
- B) Automatic bleeder vents are closed at all times except when the roof is floated off or landed on the roof leg supports; and
- C) Rim vents, if provided, are set to open when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting;

4) Routine inspections of floating roof seals are conducted through roof hatches once every six months;

5) A complete inspection of the cover and seal of any floating roof tank is made whenever the tank is emptied for reasons other than the transfer of petroleum liquid during the normal operation of the tank, or whenever repairs are made as a result of any semi-annual inspection or incidence of roof damage or defect; and

6) A record of the results of each inspection conducted under subsection (b)(4) or (b)(5) is maintained.

c) Owners and operators of petroleum liquid storage tanks were required to have compliance schedules as summarized in Appendix C, to 35 Ill Adm. Code 215.

## Section 218.124 External Floating Roofs

a) In addition to meeting the requirements of Section 218.123(b), no owner or operator of a stationary storage tank equipped with an external floating roof shall cause or allow the storage of any volatile petroleum liquid in the tank unless:

- 1) The tank has been fitted with a continuous secondary seal extending from the floating roof to the tank wall (rim mounted secondary seal) or any other device which controls VOM emissions with an effectiveness equal to or greater than a rim mounted secondary seal;
- 2) Each seal closure device meets the following requirements:

A) The seal is intact and uniformly in place around the circumference of the floating roof between the floating roof and tank wall; and

B) The accumulated area of gaps exceeding 0.32 centimeter (1/8 inch) in width between the secondary seal and the tank wall shall not exceed 21.2 square centimeters per meter of tank diameter (1.0 square inches per foot of tank diameter).

3) Emergency roof drains are provided with slotted membrane fabric covers or equivalent covers across at least 90 percent of the area of the opening;

4) Openings are equipped with projections into the tank which remain below the liquid surface at all times;

5) Inspections are conducted prior to May 1 of each year to insure compliance with subsection (a);

6) The secondary seal gap is measured prior to May 1 of each year;

7) Records of the types of volatile petroleum liquid stored, the maximum true vapor pressure of the liquid as stored, the results of the inspections and the results of the secondary seal gap measurements are maintained and available to the Agency, upon verbal or written request, at any reasonable time for a minimum of two years after the date on which the record was made.

b) Subsection (a) does not apply to any stationary storage tank equipped with an external floating roof:

1) Exempted under Section 218.123(a)(2) through 218.123(a)(6);

2) Of welded construction equipped with a metallic type shoe seal having a secondary seal from the top of the shoe seal to the tank wall (shoe-mounted secondary seal);

3) Of welded construction equipped with a metallic type shoe seal, a liquid-mounted foam seal, a liquid-mounted liquid-filled-type seal, or other closure device of equivalent control efficiency approved by the Agency in which a petroleum liquid with a true vapor pressure less than 27.6 kPa (4.0 psia) at 294.3°K (70° F) is stored; or

4) Used to store crude oil with a pour point of 50°F or higher as determined by ASTM Standard D97-66 incorporated by reference in Section 218.112.

## Section 218.125 Compliance Dates

Every owner or operator of an emission source subject to 35 Ill. Adm. Code 215, Subpart B, as of December 31, 1987 shall have complied with its standards and limitations by December 31, 1987.



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## Section 218.126 Compliance Plan

- a) The owner or operator of an emission source previously subject to Section 215.125 shall have submitted to the Agency a compliance plan as required by 35 Ill. Adm. Code 201.241, including a project completion schedule where applicable, no later than April 21, 1983.
- b) Unless the submitted compliance plan or schedule was disapproved by the Agency, the owner or operator of a facility or emission source subject to the rules specified in subsection (a) may operate the emission source according to the plan and schedule as submitted.
- c) The plan and schedule shall meet the requirements of 35 Ill. Adm. Code 201.241 including specific interim dates as required in 35 Ill. Adm. Code 201.242.

## SUBPART C: ORGANIC EMISSIONS FROM MISCELLANEOUS EQUIPMENT

## Section 218.141 Separation Operations

- a) No person shall use any single or multiple compartment effluent water separator which receives effluent water containing 757 l/day (200 gal/day) or more of organic material from any equipment processing, refining, treating, storing or handling organic material unless such effluent water separator is equipped with air pollution control equipment capable of reducing by 85 percent or more the uncontrolled organic material emitted to the atmosphere. Exception: If no odor nuisance exists the limitations of this subsection shall not apply if the vapor pressure of the organic material is below 17.24 kPa (2.5 psia) at 294.3°K (70°F).
- b) Subsection (a) shall not apply to water and crude oil separation in the production of Illinois crude oil, if the vapor pressure of such crude oil is less than 34.5 kPa (5 psia).

## Section 218.142 Pumps and Compressors

No person shall cause or allow the discharge of more than 32.8 ml (2 cu in) of VOL with vapor pressure of 17.24 kPa (2.5 psia) or greater at 294.3°K (70°F) into the atmosphere from any pump or compressor in any 15 minute period at standard conditions.

## Section 218.143 Vapor Blowdown

No person shall cause or allow the emission of organic material into the atmosphere from any vapor blowdown system or any safety relief valve, except such safety relief valves not capable of causing an excessive release, unless such emission is controlled:

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- a) To 10 ppm equivalent methane (molecular weight 16.0) or less; or,
- b) By combustion in a smokeless flare; or,
- c) By other air pollution control equipment approved by the Agency according to the provisions of 35 Ill. Adm. Code 201, and further processed consistent with Section 218.108.

## Section 218.144 Safety Relief Valves

Section 218.143 shall not apply to any set of unregulated safety relief valves capable of causing excessive releases, provided the owner or operator thereof, by October 1, 1972, supplied the Agency with the following:

- a) A historical record of each such set (or, if such records were unavailable, of similar sets which, by virtue of operation under similar circumstances, may reasonably have been presumed to have the same or greater frequency of excessive releases) for a three-year period immediately preceding October 1, 1972, indicating:
  - 1) Dates on which excessive releases occurred from each such set; and,
  - 2) Duration in minutes of each such excessive release; and,
  - 3) Quantities (in pounds) of mercaptans and/or hydrogen sulfide emitted into the atmosphere during each such excessive release.
- b) Proof, using such three-year historical records, that no excessive release is likely to occur from any such set either alone or in combination with such excessive releases from other sets owned or operated by the same person and located within a ten-mile radius from the center point of any such set, more frequently than 3 times in any 12 month period;
- c) Accurate maintenance records pursuant to the requirements of subsection (a); and,
- d) Proof, at three-year intervals, using such three-year historical records, that such set conforms to the requirements of subsection (c).

## SUBPART E: SOLVENT CLEANING

## Section 218.181 Solvent Cleaning in General

The requirements of this Subpart shall apply to all cold cleaning, open top vapor degreasing, and conveyORIZED degreasing operations.



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## Section 218.182 Cold Cleaning

- a) Operating Procedures: No person shall operate a cold cleaning degreaser unless:
- 1) Waste solvent is stored in covered containers only and not disposed of in such a manner that more than 20% of the waste solvent (by weight) is allowed to evaporate into the atmosphere;
  - 2) The cover of the degreaser is closed when parts are not being handled; and
  - 3) Parts are drained until dripping ceases.
- b) Equipment Requirements: No person shall operate a cold cleaning degreaser unless:

- 1) The degreaser is equipped with a cover which is closed whenever parts are not being handled in the cleaner. The cover shall be designed to be easily operated with one hand or with the mechanical assistance of springs, counter-weights or a powered system if:
  - A) The solvent vapor pressure is greater than 2 kPa (15 mmHg or 0.3 psi) measured at 38°C (100°F);
  - B) The solvent is agitated; or
  - C) The solvent is heated above ambient room temperature.
- 2) The degreaser is equipped with a facility for draining cleaned parts. The drainage facility shall be constructed so that parts are enclosed under the cover while draining unless:
  - A) The solvent vapor pressure is less than 4.3 kPa (32 mmHg or 0.6 psi) measured at 38°C (100°F); or
  - B) An internal drainage facility cannot be fitted into the cleaning system, in which case the drainage facility may be external.
- 3) The degreaser is equipped with one of the following control devices if the vapor pressure of the solvent is greater than 4.3 kPa (32 mmHg or 0.6 psi) measured at 38°C (100°F) or if the solvent is heated above 50°C (120°F) or its boiling point:
  - A) A freeboard height of 7/10 of the inside width of the tank or 91 cm (36 in), whichever is less; or

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- B) Any other equipment or system of equivalent emission control as approved by the Agency and further processed consistent with Section 218.108. Such a system may include a water cover, refrigerated chiller or carbon adsorber.
- 4) A permanent conspicuous label summarizing the operating procedure is affixed to the degreaser; and
  - 5) If a solvent spray is used, the degreaser is equipped with a solid fluid stream spray, rather than a fine, atomized or shower spray.

## Section 218.183 Open Top Vapor Degreasing

- a) Operating Requirements: No person shall operate an open top vapor degreaser unless:
- 1) The cover of the degreaser is closed when workloads are not being processed through the degreaser;
  - 2) Solvent carryout emissions are minimized by:
    - A) Racking parts to allow complete drainage;
    - B) Moving parts in and out of the degreaser at less than 3.3 m/min (11 ft/min);
    - C) Holding the parts in the vapor zone until condensation ceases;
    - D) Tipping out any pools of solvent on the cleaned parts before removal from the vapor zone; and,
    - E) Allowing parts to dry within the degreaser until visually dry.
  - 3) Porous or absorbent materials, such as cloth, leather, wood or rope are not degreased;
  - 4) Less than half of the degreaser's open top area is occupied with a workload;
  - 5) The degreaser is not loaded to the point where the vapor level would drop more than 10 cm (4 in) when the workload is removed from the vapor zone;
  - 6) Spraying is done below the vapor level only;
  - 7) Solvent leaks are repaired immediately;



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- 8) Waste solvent is stored in covered containers only and not disposed of in such a manner that more than 20% of the waste solvent (by weight) is allowed to evaporate into the atmosphere;
  - 9) Water is not visually detectable in solvent exiting from the water separator; and
  - 10) Exhaust ventilation exceeding 20 cubic meters per minute per square meter (65 cubic feet per minute per square foot) of degreaser open area is not used, unless necessary to meet the requirements of the Occupational Safety and Health Act (29 U.S.C. Section 651 et seq.).
- b) Equipment Requirements: No person shall operate an open top vapor degreaser unless:
- 1) The degreaser is equipped with a cover designed to open and close easily without disturbing the vapor zone;
  - 2) The degreaser is equipped with the following switches:
    - A) A device which shuts off the sump heat source if the amount of condenser coolant is not sufficient to maintain the designed vapor level; and
    - B) A device which shuts off the spray pump if the vapor level drops more than 10 cm (4 in) below the bottom condenser coil; and
    - C) A device which shuts off the sump heat source when the vapor level exceeds the design level.
  - 3) A permanent conspicuous label summarizing the operating procedure is affixed to the degreaser;
  - 4) The degreaser is equipped with one of the following devices:
    - A) A freeboard height of 3/4 of the inside width of the degreaser tank or 91 cm (36 in), whichever is less; and if the degreaser opening is greater than 1 square meter (10.8 square feet), a powered or mechanically assisted cover; or
    - B) Any other equipment or system of equivalent emission control as approved by the Agency and further processed consistent with Section 218.108. Such equipment or system may include a refrigerated chiller, an enclosed design or a carbon adsorption system.

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## Section 218.184 Conveyorized Degreasing

- a) Operating Requirements: No person shall operate a conveyorized degreaser unless:
- 1) Exhaust ventilation exceeding 20 cubic meters per minute per square meter (65 cubic feet per minute per square foot) of area of loading and unloading opening is not used, unless necessary to meet the requirements of the Occupational Safety and Health Act (29 U.S.C. Section 651 et seq.).
  - 2) Solvent carryout emissions are minimized by:
    - A) Racking parts for best drainage; and
    - B) Maintaining the vertical conveyor speed at less than 3.3 m/min (11 ft/min);
  - 3) Waste solvent is stored in covered containers only and not disposed of in such a manner that more than 20% of the waste solvent (by weight) is allowed to evaporate into the atmosphere;
  - 4) Solvent leaks are repaired immediately;
  - 5) Water is not visually detectable in solvent exiting from the water separator; and
  - 6) Downtime covers are placed over entrances and exits of conveyorized degreasers immediately after the conveyors and exhausts are shut down and not removed until just before start-up.
- b) Equipment Requirements: No person shall operate a conveyorized degreaser unless:
- 1) The degreaser is equipped with a drying tunnel, rotating (tumbling) basket or other equipment sufficient to prevent cleaned parts from carrying out solvent liquid or vapor;
  - 2) The degreaser is equipped with the following switches:
    - A) A device which shuts off the sump heat source if the amount of condenser coolant is not sufficient to maintain the designed vapor level;
    - B) A device which shuts off the spray pump or the conveyor if the vapor level drops more than 10 cm (4 in) below the bottom condenser coil; and



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- C) A device which shuts off the sump heat source when the vapor level exceeds the design level;

- 3) The degreaser is equipped with openings for entrances and exits that silhouette workloads so that the average clearance between the parts and the edge of the degreaser opening is less than 10 cm (4 in) or less than 10 percent of the width of the opening;
- 4) The degreaser is equipped with downtime covers for closing off entrances and exits when the degreaser is shut down; and
- 5) The degreaser is equipped with one of the following control devices, if the air/vapor interface is larger than 2.0 square meters (21.6 square feet):
  - A) A carbon adsorption system with ventilation greater than or equal to 15 cubic meters per minute per square meter (50 cubic feet per minute per square foot) of air/vapor area when downtime covers are open, and exhausting less than 25 ppm of solvent by volume averaged over a complete adsorption cycle; or
  - B) Any other equipment or system of equivalent emission control as approved by the Agency, and further processed consistent with Section 218.108. Such equipment or system may include a refrigerated chiller.

## Section 218.185 Compliance Schedule

Every owner or operator of an emission source which was previously exempt from the requirements of Subpart E of 35 Ill. Adm. Code 215 (Sections 215.182-215.184) because it satisfied the criteria in either 35 Ill. Adm. Code 215.181(a) or 35 Ill. Adm. Code 215.181(b), shall comply with the requirements of this Subpart on and after a date consistent with Section 218.106. A source which did not satisfy the criteria in either 35 Ill. Adm. Code 215.181(a) or 35 Ill. Adm. Code 215.181(b) shall comply with the requirements of this Subpart upon adoption.

## Section 218.186 Test Methods

The following test methods shall be used to demonstrate compliance with this Subpart:

- a) Vapor pressures shall be determined by using the procedure specified in Section 218.110.
- b) Exhaust ventilation rates shall be determined by using the procedures specified in Section 218.105(f)(3).

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- c) The performance of control devices shall be determined by using the procedures specified in Section 218.105(f).

## SUBPART F: COATING OPERATIONS

## Section 218.204 Emission Limitations for Manufacturing Plants

Except as provided in Section 218.208, no owner or operator of a coating line shall apply at any time any coating in which the VOM content exceeds the following emission limitations for the specified coating. The following emission limitations are expressed in units of VOM per volume of coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied at each coating applicator, except where noted. Compounds which are specifically exempted from the definition of VOM should be treated as water for the purpose of calculating the "less water" part of the coating composition.

Compliance with this Subpart must be demonstrated through the applicable coating analysis test methods and procedures specified in Section 218.105(a) and the recordkeeping and reporting requirements specified in Section 218.211(c). (Note: The equation presented in Section 218.206 shall be used to calculate emission limitations for determining compliance by add-on controls, credits for transfer efficiency, emissions trades and cross-line averaging.) The emission limitations are as follows:

	kg/l	lb/gal
a) Automobile or Light-Duty Truck Coating		
1) Prime coat	0.14	(1.2)
2) Prime surfacer coat	0.34	(2.8)
(Note: The prime surfacer coat limitation is based upon a transfer efficiency of 30 percent. The use of transfer efficiency credits can be allowed only if approved by the Agency and approved by the USEPA as a SIP revision.)		
3) Topcoat	1.81	(15.1)

(Note: The topcoat limitation is in units of kg (lbs) of VOM per l (gal) of coating solids deposited. Compliance with the limitation shall be based on the daily-weighted average VOM content from the entire topcoat operation (all topcoat spray booths, flash-off areas and bake ovens). Compliance shall be demonstrated in accordance with the topcoat protocol for automobiles and light-duty trucks referenced in Section 218.105(b). Section 218.205 does not apply to the topcoat limitation.) At least 180 days prior to the initial compliance date, the owner or operator of a coating line subject to the topcoat



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Limitation shall have submitted to the USEPA a detailed proposal specifying the method of demonstrating compliance with the protocol. The proposal shall have included, at a minimum, a comprehensive plan (including a rationale) for determining the transfer efficiency at each booth through the use of in-plant, or pilot testing; the selection of coatings to be tested (for the purpose of determining transfer efficiency) including the rationale for coating groupings; and the method for determining the analytic VOM content of as applied coatings and the formulation solvent content of as applied coatings. Upon approval of the protocol by the USEPA, the source may proceed with the compliance demonstration.

b)	Can Coating	kg/l	lb/gal
		0.58	(4.8)
c)	Paper Coating	kg/l	lb/gal
		0.35	(2.9)
		(Note: The paper coating limitation shall not apply to any owner or operator of any paper coating line on which printing is performed if the paper coating line complies with the emissions limitations in Subpart H: Printing and Publishing, Sections 218.401 through 218.404.)	
		kg/l	lb/gal
		0.31	(2.6)
		0.35	(2.9)
d)	Coll Coating	0.45	(3.8)
e)	Fabric Coating		
f)	Vinyl Coating		

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g)	Metal Furniture Coating	0.36	(3.0)
		0.34	(2.8)
h)	Large Appliance Coating	(Note: The limitation shall not apply to the use of quick-drying lacquers for repair of scratches and nicks that occur during assembly, provided that the volume of coating does not exceed 0.95 l (1 quart) in any one rolling eight-hour period.)	
		kg/l	lb/gal
		0.20	(1.7)
		Miscellaneous Metal Parts and Products Coating	
		0.52	(4.3)
		0.42	(3.5)
i)	Magnet Wire Coating	0.42	(3.5)
		0.36	(3.0)
		kg/l	lb/gal
		0.36	(3.0)
j)	Miscellaneous Metal Parts and Products Coating	0.42	(3.5)
		0.42	(3.5)
		0.36	(3.0)
		kg/l	lb/gal
k)	Heavy Off-Highway Vehicle Products Coating	0.42	(3.5)
		0.42	(3.5)
		0.42	(3.5)
		0.42	(3.5)
l)	Wood Furniture Coating	0.67	(5.6)



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- |    |                        |      |       |
|----|------------------------|------|-------|
| 2) | Opaque stain           | 0.56 | (4.7) |
| 3) | Pigmented coat         | 0.60 | (5.0) |
| 4) | Repair coat            | 0.67 | (5.6) |
| 5) | Sealer                 | 0.67 | (5.6) |
| 6) | Semi-transparent stain | 0.79 | (6.6) |
| 7) | Wash coat              | 0.73 | (6.1) |

(Note: An owner or operator of a wood furniture coating operation subject to this Section shall apply all coatings, with the exception of no more than 37.8 l (10 gal) of coating per day used for touch-up and repair operations, using one or more of the following application systems: airless spray application system, air-assisted airless spray application system, electrostatic spray application system, electrostatic bell or disc spray application system, heated airless spray application system, roller coating, brush or wipe coating application system, or dip coating application system.)

## m) Existing Diesel-Electric Locomotive Coating Lines in Cook County

- |   | kg/l | lb/gal |
|---|------|--------|
| 1) Extreme performance prime coat           | 0.42 | (3.5)  |
| 2) Extreme performance top-coat (air dried) | 0.42 | (3.5)  |
| 3) Final repair coat (air dried)            | 0.42 | (3.5)  |
| 4) High-temperature aluminum coating        | 0.72 | (6.0)  |
| 5) All other coatings                       | 0.36 | (3.0)  |

## Section 218.205 Daily-Weighted Average Limitations

No owner or operator of a coating line subject to the limitations of Section 218.204 and complying by means of this Section shall operate the subject coating line unless the owner or operator has demonstrated compliance with subsection (a), (b), (c), (d), (e) or (f) (depending upon the source category) through the applicable coating analysis test methods and procedures specified in Section 218.105(a) and the recordkeeping and reporting requirements specified in Section 218.211(d):

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- a) No owner or operator of a coating line subject to only one of the limitations from among Section 218.204(a)(1), (a)(2), (a)(4), (c), (d), (e), (f), (g), (h), or (i) shall apply coatings on any such coating line, during any day, whose daily-weighted average VOM content exceeds the emission limitation to which the coatings are subject.
- b) No owner or operator of a miscellaneous metal parts and products coating line subject to the limitations of Section 218.204(j) shall apply coatings to miscellaneous metal parts or products on the subject coating line unless the requirements in subsection (b)(1) or (b)(2) below are met.

1) For each coating line which applies multiple coatings, all of which are subject to the same numerical emission limitation within Section 218.204(j) above, during the same day (e.g., all coatings used on the line are subject to 0.42 kg/l [3.5 lbs/gal]), the daily-weighted average VOM content shall not exceed the coating VOM content limit corresponding to the category of coating used, or

2) For each coating line which applies coatings from more than one of the four coating categories in Section 218.204(j) above, during the same day, the owner or operator shall have a site-specific proposal approved by the Agency and approved by the USEPA as a SIP revision. To receive approval, the requirements of USEPA's Emissions Trading Policy Statement (and related policy) must be satisfied.

- c) No owner or operator of a can coating facility subject to the limitations of Section 215.204(b) shall operate the subject coating facility using a coating with a VOM content in excess of the limitations specified in Section 215.204(b) unless all of the following requirements are met:

1) An alternative daily emission limitation shall be determined according to subsection (c)(2) below. Actual daily emissions shall never exceed the alternative daily emission limitation and shall be calculated by use of the following equation.

$$E_d = \sum_{i=1}^n V_i C_i$$

where:

$E_d$  = Actual VOM emissions for the day in units of kg/day (lbs/day).



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- $i$  = Subscript denoting a specific coating applied.
- $n$  = Total number of coatings applied in the can coating operation.
- $V_i$  = Volume of each coating applied for the day in units of l/day (gal/day) of coating (minus water and any compounds which are specifically exempted from the definition of VOM), and

$C_i$  = The VOM content of each coating as applied in units of kg VOM/l (lbs VOM/gal) of coating (minus water and any compounds which are specifically exempted from the definition of VOM).

- 2) The alternative daily emission limitation ( $A_d$ ) shall be determined on a daily basis as follows:

$$A_d = \sum_{i=1}^n V_i L_i \left( \frac{D_i - C_i}{(D_i - L_i)} \right)$$

where:

- $A_d$  = The VOM emissions allowed for the day in units of kg/day (lbs/day).
- $i$  = Subscript denoting a specific coating applied.
- $n$  = Total number of surface coatings applied in the can coating operation.
- $C_i$  = The VOM content of each surface coating as applied in units of kg VOM/l (lbs VOM/gal) of coating (minus water and any compounds which are specifically exempted from the definition of VOM).
- $D_i$  = The density of VOM in each coating applied. For the purposes of calculating  $A_d$ , the density is 0.882 kg VOM/l VOM (7.36 lbs VOM/gal VOM).
- $V_i$  = Volume of each surface coating applied for the day in units of l (gal) of coating (minus water and any compounds which are specifically exempted from the definition of VOM).
- $L_i$  = The VOM emission limitation for each surface coating applied as specified in Section 218.204(b) in units

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of kg VOM/l (lbs VOM/gal) of coating (minus water and any compounds which are specifically exempted from the definition of VOM).

- d) No owner or operator of a heavy off-highway vehicle products coating line subject to the limitations of Section 218.204(k) shall apply coatings to heavy off-highway vehicle products on the subject coating line unless the requirements of subsection (d)(1) or (d)(2) below are met.
- 1) For each coating line which applies multiple coatings, all of which are subject to the same numerical emission limitation within Section 218.204(k) above, during the same day (e.g., all coatings used on the line are subject to 0.42 kg/l [3.5 lbs/gal]), the daily-weighted average VOM content shall not exceed the coating VOM content limit corresponding to the category of coating used, or
- 2) For each coating line which applies coatings subject to more than one numerical emission limitation in Section 218.204(k) above, during the same day, the owner or operator shall have a site specific proposal approved by the Agency and approved by the USEPA as a SIP revision. To receive approval, the requirements of USEPA's Emissions Trading Policy Statement (and related policy) must be satisfied.
- e) No owner or operator of a wood furniture coating line subject to the limitations of Section 218.204(l) shall apply coatings to wood furniture on the subject coating line unless the requirements of subsection (e)(1) or (e)(2), in addition to the requirements specified in the note to Section 218.204(l), are met.
- 1) For each coating line which applies multiple coatings, all of which are subject to the same numerical emission limitation within Section 218.204(l) above, during the same day (e.g., all coatings used on the line are subject to 0.67 kg/l [5.6 lbs/gal]), the daily-weighted average VOM content shall not exceed the coating VOM content limit corresponding to the category of coating used, or
- 2) For each coating line which applies coatings subject to more than one numerical emission limitation in Section 218.204(l) above, during the same day, the owner or operator shall have a site specific proposal approved by the Agency and approved by the USEPA as a SIP revision. To receive approval, the requirements of USEPA's Emissions Trading Policy Statement (and related policy) must be satisfied.



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- f) No owner or operator of an existing diesel-electric locomotive coating line in Cook County, subject to the limitations of Section 218.204(m) shall apply coatings to diesel-electric locomotives on the subject coating line unless the requirements of subsection (b)(1) or (b)(2) are met.

- 1) For each coating line which applies multiple coatings, all of which are subject to the same numerical emission limitation within Section 218.204(m) above, during the same day (e.g., all coatings used on the line are subject to 0.42 kg/l [3.5 lbs/gal]), the daily-weighted average VOM content shall not exceed the coating VOM content limit corresponding to the category of coating used, or
- 2) For each coating line which applies coatings subject to more than one numerical emission limitation in Section 218.204(m) above, during the same day, the owner or operator shall have a site specific proposal approved by the Agency and approved by the USEPA as a SIP revision. To receive approval, the requirements of USEPA's Emissions Trading Policy Statement (and related policy) must be satisfied.

## Section 218.206 Solids Basis Calculation

Limitations in terms of kg (lbs) of VOM emissions per l (gal) of solids as applied at each coating applicator shall be determined by the following equation:

$$S = \frac{C}{1 - (C/D)}$$

where:

- S = The limitation on VOM emissions in terms of kg VOM/l (lbs VOM/gal) of solids,
- C = The limitation on VOM emissions in terms of kg/l (lbs/gal) of coating (minus water and any compounds which are specifically excluded from the definition of VOM) specified in Section 218.204,
- D = The density of VOM in the coating. For the purposes of calculating S, the density is 0.882 kg VOM/l VOM (7.36 lbs VOM/gal VOM).

## Section 218.207 Alternative Emission Limitations

- a) Any owner or operator of a coating line subject to Section 218.204 may comply with this Section, rather than with Section 218.204, if a

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capture system and control device are operated at all times and the owner or operator demonstrates compliance with subsections (c), (d), (e), (f), (g) or (h) (depending upon the source category) through the applicable coating analysis and capture system and control device efficiency test methods and procedures specified in Section 218.105 and the recordkeeping and reporting requirements specified in Section 218.211(e); and the control device is equipped with the applicable monitoring equipment specified in Section 218.105(d) and the monitoring equipment is installed, calibrated, operated and maintained according to vendor specifications at all times the control device is in use. A capture system and control device, which does not demonstrate compliance with subsection (c), (d), (e), (f), (g) or (h) may be used as an alternative to compliance with Section 218.204 only if the alternative is approved by the Agency and approved by the USEPA as a SIP revision.

## b) Alternative Add-On Control Methodologies

- 1) The coating line is equipped with a capture system and control device that provides 81 percent reduction in the overall emissions of VOM from the coating line and the control device has a 90 percent efficiency, or
- 2) The system used to control VOM from the coating line is demonstrated to have an overall efficiency sufficient to limit VOM emissions to no more than what is allowed under Section 218.204. Use of any control system other than an afterburner, carbon adsorption, condensation, or absorption scrubber system can be allowed only if approved by the Agency and approved by the USEPA as a SIP revision. The use of transfer efficiency credits can be allowed only if approved by the Agency and approved by the USEPA as a SIP revision. Baseline transfer efficiencies and transfer efficiency test methods must be approved by the Agency and the USEPA.

Such overall efficiency is to be determined as follows:

- A) obtain the emission limitation from the appropriate subsection in Section 218.204,
- B) calculate "S" according to the equation in Section 218.206,
- 3) calculate the overall efficiency required according to Section 218.105(e). For the purposes of calculating this value, according to the equation in Section 218.105(e)(2), VOM, is equal to the value of "S" as determined above in subsection (b)(2)(B).



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c) No owner or operator of a coating line subject to only one of the emission limitations from among Section 218.204(a)(1), (a)(2), (a)(4), (c), (d), (e), (f), (g), (h) or (i) and equipped with a capture system and control device shall operate the subject coating line unless the requirements in subsection (b)(1) or (b)(2) above are met. No owner or operator of a coating line subject to Section 218.204(a)(3) and equipped with a capture system and control device shall operate the coating line unless the owner or operator demonstrates compliance with the topcoat limitation in accordance with the topcoat protocol for automobile or light-duty trucks referenced in Section 218.105(b).

d) No owner or operator of a miscellaneous metal parts and products coating line which applies one or more coatings during the same day, all of which are subject to the same numerical emission limitation within Section 218.204(j) (e.g., all coatings used on the line are subject to 0.42 kg/l [3.5 lbs/gal]), and which is equipped with a capture system and control device shall operate the subject coating line unless the requirements in subsection (b)(1) or (b)(2) above are met.

e) No owner or operator of a heavy off-highway vehicle products coating line which applies one or more coatings during the same day, all of which are subject to the same numerical emission limitation within Section 218.204(k) (e.g., all coatings used on the line are subject to 0.42 kg/l [3.5 lbs/gal]), and which is equipped with a capture system and control device shall operate the subject coating line unless the requirements in subsection (b)(1) or (b)(2) above are met.

f) No owner or operator of an existing diesel-electric locomotive coating line in Cook County which applies one or more coatings during the same day, all of which are subject to the same numerical emission limitation within Section 218.204(m) (e.g., all coatings used on the line are subject to 0.42 kg/l [3.5 lbs/gal]), and which is equipped with a capture system and control device shall operate the subject coating line unless the requirements in subsection (b)(1) or (b)(2) above are met.

g) No owner or operator of a wood furniture coating line which applies one or more coatings during the same day, all of which are subject to the same numerical emission limitation within Section 218.204(l) (e.g., all coatings used on the line are subject to 0.67 kg/l [5.6 lbs/gal]), and which is equipped with a capture system and control device shall operate the subject coating line unless the requirements in subsection (b)(1) or (b)(2) are met. If compliance is achieved by meeting the requirements in subsection (b)(2), then the provisions in the note to Section 218.204(1) must also be met.

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h) No owner or operator of a can coating facility and equipped with a capture system and control device shall operate the subject coating facility unless the requirements in subsection (h)(1) or (h)(2) below are met.

1) An alternative daily emission limitation shall be determined according to Section 218.205(c)(2). Actual daily emissions shall never exceed the alternative daily emission limitation and shall be calculated by use of the following equation:

$$E_d = \sum_{i=1}^n V_i C_i (1-F_i)$$

where:

$E_d$  = Actual VOM emissions for the day in units of kg/day (lbs/day),

$i$  = Subscript denoting the specific coating applied,

$n$  = Total number of surface coatings as applied in the can coating operation,

$V_i$  = Volume of each coating as applied for the day in units of l/day (gal/day) of coating (minus water and any compounds which are specifically exempted from the definition of VOM),

$C_i$  = The VOM content of each coating as applied in units of kg VOM/l (lbs VOM/gal) of coating (minus water and any compounds which are specifically exempted from the definition of VOM), and

$F_i$  = Fraction, by weight, of VOM emissions from the surface coating, reduced or prevented from being emitted to the ambient air. This is the overall efficiency of the capture system and control device.

2) The coating line is equipped with a capture system and control device that provide 75 percent reduction in the overall emissions of VOM from the coating line and the control device has a 90 percent efficiency.

## Section 218.208 Exemptions From Emission Limitations

a) Exemptions for all source categories except wood furniture coating. The limitations of this Subpart shall not apply to coating lines



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within a facility, that otherwise would be subject to the same subsection of Section 218.204 (because they belong to the same source category, e.g., can coating), provided that combined actual emissions of VOM from all lines at the facility subject to that subsection never exceed 6.8 kg/day (15 lbs/day) before the application of capture systems and control devices. (For example, can coating lines within a plant would not be subject to the limitations of Section 218.204(b) if the combined actual emissions of VOM from the can coating lines never exceed 6.8 kg/day (15 lbs/day) before the application of capture systems and control devices.) Volatile organic material emissions from heavy off-highway vehicle products coating lines must be combined with VOM emissions from miscellaneous metal parts and products coating lines to determine applicability. Any owner or operator of a coating facility shall comply with the applicable coating analysis test methods and procedures specified in Section 218.105(a) and the recordkeeping and reporting requirements specified in Section 218.211(a) if total VOM emissions from the subject coating lines are always less than or equal to 6.8 kg/day (15 lbs/day) before the application of capture systems and control devices and, therefore, are not subject to the limitations of Section 218.204. Once a category of coating lines at a facility is subject to the limitations in Section 218.204, the coating lines are always subject to the limitations in Section 218.204.

## b) Applicability for wood furniture coating

- 1) The limitations of this Subpart shall apply to a plant's wood furniture coating lines if the plant contains process emission sources, not regulated by Subparts B, E, F (excluding Section 218.204(1)), H (excluding Section 218.405), Q, R, S, V, X, Y, or Z of this Part, which as a group both:
  - A) have maximum theoretical emissions of 91 Mg (100 tons) or more per calendar year of VOM if no air pollution control equipment were used, and
  - B) are not limited to less than 91 Mg (100 tons) of VOM per calendar year if no air pollution control equipment were used, through production or capacity limitations contained in a federally enforceable construction permit or SIP revision.
- 2) If a plant ceases to fulfill the criteria of subsection (b)(1), the limitations of Section 218.204(1) shall continue to apply to any wood furniture coating line which was ever subject to the limitations of Section 218.204(1).
- 3) For the purposes of subsection (b), an emission source shall be considered regulated by a Subpart if it is subject to the

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limitations of that Subpart. An emission source is not considered regulated by a Subpart if its emissions are below the applicability cutoff level or if the source is covered by an exemption.

- 4) Any owner or operator of a wood furniture coating line to which the limitations of this Subpart are not applicable due to the criteria in subsection (b) shall, upon request by the Agency or the USEPA, submit records to the Agency and the USEPA within 30 calendar days from the date of the request that document that the coating line is exempt from the limitations of this Subpart.

## Section 218.209 Exemption From General Rule on Use of Organic Material

No owner or operator of a coating line subject to the limitations of Section 218.204 is required to meet the limitations of Subpart G (Section 218.301 or 218.302) of this Part, after the date by which the coating line is required to meet Section 218.204.

## Section 218.210 Compliance Schedule

Every owner or operator of a coating line (of a type included within Section 218.204) shall comply with the requirements of Section 218.204, 218.207 or 218.208 and Section 218.211 in accordance with the appropriate compliance schedule as specified in subsection (a), (b), (c) or (d) below:

- a) No owner or operator of a coating line which is exempt from the limitations of Section 218.204 because of the criteria in Section 218.208(a) shall operate said coating line on or after a date consistent with Section 218.106, unless the owner or operator has complied with, and continues to comply with, Section 218.211(b). Wood furniture coating lines are not subject to Section 218.211(b).
- b) No owner or operator of a coating line complying by means of Section 218.204 shall operate said coating line on or after a date consistent with Section 218.106, unless the owner or operator has complied with, and continues to comply with, Sections 218.204 and 218.211(c).
- c) No owner or operator of a coating line complying by means of Section 218.205 shall operate said coating line on or after a date consistent with Section 218.106, unless the owner or operator has complied with, and continues to comply with, Sections 218.205 and 218.211(d).
- d) No owner or operator of a coating line complying by means of Section 218.207 shall operate said coating line on or after a date consistent with Section 218.106, unless the owner or operator has complied with, and continues to comply with, Sections 218.207 and 218.211(e).



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## Section 218.211 Recordkeeping and Reporting

- a) The VOM content of each coating and the efficiency of each capture system and control device shall be determined by the applicable test methods and procedures specified in Section 218.105 to establish the records required under this Section.
- b) Any owner or operator of a coating line which is exempted from the limitations of Section 218.204 because of Section 218.208(a) shall comply with the following:

- 1) By a date consistent with Section 218.106, the owner or operator of a facility referenced in this subsection shall certify to the Agency that the facility is exempt under the provisions of Section 218.208(a). Such certification shall include:

- A) A declaration that the facility is exempt from the limitations of Section 218.204 because of Section 218.208(a); and
- B) Calculations which demonstrate that the combined VOM emissions from all coating lines at the facility never exceed 6.8 kg (15 lbs) per day before the application of capture systems and control devices. The following equation shall be used to calculate total VOM emissions:

$$T_e = \sum_{j=1}^m \sum_{i=1}^n (A_i B_i)$$

where:

$T_e$  = Total VOM emissions from coating lines at a facility each day before the application of capture systems and control devices in units of kg/day (lbs/day),

$m$  = Number of coating lines at the facility,

$j$  = Subscript denoting an individual coating line,

$n$  = Number of different coatings as applied each day on each coating line at the facility,

$i$  = Subscript denoting an individual coating,

$A_i$  = Weight of VOM per volume of each coating (minus water and any compounds which are specifically

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exempted from the definition of VOM) as applied each day on each coating line at the facility in units of kg VOM/l (lbs VOM/gal), and

$B_i$  = Volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line at the facility in units of l/day (gal/day). The instrument or method by which the owner or operator accurately measured or calculated the volume of each coating as applied on each coating line each day shall be described in the certification to the Agency.

- 2) On and after a date consistent with Section 218.106, the owner or operator of a facility referenced in this subsection shall collect and record all of the following information each day for each coating line and maintain the information at the facility for a period of three years:

- A) The name and identification number of each coating as applied on each coating line.
- B) The weight of VOM per volume and the volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line.

- 3) On and after a date consistent with Section 218.106, the owner or operator of a facility exempted from the limitations of Section 218.204 because of Section 218.208(a) shall notify the Agency of any record showing that total VOM emissions from the coating facility exceed 6.8 kg (15 lbs) in any day before the application of capture systems and control devices by sending a copy of such record to the Agency within 30 days after the exceedance occurs.

- c) Any owner or operator of a coating line subject to the limitations of Section 218.204 and complying by means of Section 218.204 shall comply with the following:

- 1) By a date consistent with Section 218.106, or upon initial start-up of a new coating line, or upon changing the method of compliance from an existing subject coating line from Section 218.205 or Section 218.207 to Section 218.204; the owner or operator of a subject coating line shall certify to the Agency that the coating line will be in compliance with Section 218.204 on and after a date consistent with Section 218.106, or on and



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after the initial start-up date. Such certification shall include:

- A) The name and identification number of each coating as applied on each coating line.
- B) The weight of VOM per volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line.
- C) For coating lines subject to Section 218.204(a)(3), certification shall include:
  - i) The name and identification number of each coating line which will comply by means of Section 218.204(a)(3).
  - ii) The name and identification number of each coating as applied on each coating line.
  - iii) The weight of VOM per volume of each coating as applied on each coating line.
  - iv) The instrument or method by which the owner or operator will accurately measure or calculate the volume of each coating as applied each day on each coating line.
  - v) The method by which the owner or operator will create and maintain records each day as required in subsection (c)(2) below for coating lines subject to Section 218.204(a)(3).
  - vi) An example format in which the records required in subsection (c)(2) below for coating lines subject to Section 218.204(a)(3).
- 2) On and after a date consistent with Section 218.106, or on and after the initial start-up date, the owner or operator of a coating line subject to the limitations of Section 218.204 and complying by means of Section 218.204 shall collect and record all of the following information each day for each coating line and maintain the information at the facility for a period of three years:
  - A) The name and identification number of each coating as applied on each coating line.

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- B) The weight of VOM per volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line.
- C) For coating lines subject to Section 218.204(a)(3), the owner or operator shall maintain all records necessary to calculate the daily-weighted average VOM content from the coating line in accordance with the proposal submitted, and approved by the USEPA, pursuant to Section 218.204(a)(3).
- 3) On and after a date consistent with Section 218.106, the owner or operator of a subject coating line shall notify the Agency in the following instances:
  - A) Any record showing violation of Section 218.204 shall be reported by sending a copy of such record to the Agency within 30 days following the occurrence of the violation, except that any record showing a violation of Section 218.204(a)(3) shall be reported by sending a copy of such record to the Agency within 15 days from the end of the month in which the violation occurred.
  - B) At least 30 calendar days before changing the method of compliance with Section 218.204 from Section 218.204 to Section 218.205 or Section 218.207, the owner or operator shall comply with all requirements of subsection (d)(1) or (e)(1) below, respectively. Upon changing the method of compliance with Section 218.204 from Section 218.204 to Section 218.205 or Section 218.207, the owner or operator shall comply with all requirements of subsection (d) or (e), respectively.
  - C) For coating lines subject to Section 218.204(a)(3), the owner or operator shall notify the Agency of any change to the topcoating operation at least 30 days before the change is effected. The Agency shall determine whether or not recertification testing is required. If the Agency determines that recertification testing is required, then the owner or operator shall submit a proposal to the Agency to test within 30 days and retest within 30 days of the Agency's approval of the proposal.
  - d) Any owner or operator of a coating line subject to the limitations of Section 218.204 and complying by means of Section 218.205 shall comply with the following:
    - 1) By a date consistent with Section 218.106, or upon initial start-up of a new coating line, or upon changing the method of



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compliance for an existing subject coating line from Section 218.204 or Section 218.207 to Section 218.205; the owner or operator of the subject coating line shall certify to the Agency that the coating line will be in compliance with Section 218.205 on and after a date consistent with Section 218.106, or on and after the initial start-up date. Such certification shall include:

- A) The name and identification number of each coating line which will comply by means of Section 218.205.
  - B) The name and identification number of each coating as applied on each coating line.
  - C) The weight of VOM per volume and the volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line.
  - D) The instrument or method by which the owner or operator will accurately measure or calculate the volume of each coating as applied each day on each coating line.
  - E) The method by which the owner or operator will create and maintain records each day as required in subsection (d)(2).
  - F) An example of the format in which the records required in subsection (d)(2) will be kept.
- 2) On and after a date consistent with Section 218.106, or on and after the initial start-up date, the owner or operator of a coating line subject to the limitations of Section 218.204 and complying by means of Section 218.205, shall collect and record all of the following information each day for each coating line and maintain the information at the facility for a period of three years:
- A) The name and identification number of each coating as applied on each coating line.
  - B) The weight of VOM per volume and the volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line.
  - C) The daily-weighted average VOM content of all coatings as applied on each coating line as defined in Section 218.104.

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- 3) On and after a date consistent with Section 218.106, the owner or operator of a subject coating line shall notify the Agency in the following instances:

- A) Any record showing violation of Section 218.205 shall be reported by sending a copy of such record to the Agency within 30 days following the occurrence of the violation.
- B) At least 30 calendar days before changing the method of compliance with this subpart from Section 218.205 to Section 218.204 or Section 218.207, the owner or operator shall comply with all requirements of subsection (c)(1) or (e)(1), respectively. Upon changing the method of compliance with this subpart from Section 218.205 to Section 218.204 or Section 218.207, the owner or operator shall comply with all requirements of subsection (c) or (e), respectively.
- e) Any owner or operator of a coating line subject to the limitations of Section 218.207 and complying by means of Section 218.207(c), (d), (e), (f), (g) or (h) shall comply with the following:
  - 1) By a date consistent with Section 218.106, or upon initial start-up of a new coating line, or upon changing the method of compliance for an existing coating line from Section 218.204 or Section 218.205 to Section 218.207, the owner or operator of the subject coating line shall perform all tests and submit to the Agency the results of all tests and calculations necessary to demonstrate that the subject coating line will be in compliance with Section 218.207 on and after a date consistent with Section 218.106, or on and after the initial start-up date.
  - 2) On and after a date consistent with Section 218.106, or on and after the initial start-up date, the owner or operator of a coating line subject to the limitations of Section 218.207 and complying by means of Section 218.207(c), (d), (e), (f), (g), or (h) shall collect and record all of the following information each day for each coating line and maintain the information at the facility for a period of three years:
    - A) The weight of VOM per volume of coating solids as applied each day on each coating line, if complying pursuant to Section 218.207(b)(2).
    - B) Control device monitoring data.
    - C) A log of operating time for the capture system, control device, monitoring equipment and the associated coating line.



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- D) A maintenance log for the capture system, control device and monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages.
- 3) On and after a date consistent with Section 218.106, the owner or operator of a subject coating line shall notify the Agency in the following instances:
- A) Any record showing violation of Section 218.207 shall be reported by sending a copy of such record to the Agency within 30 days following the occurrence of the violation.
- B) At least 30 calendar days before changing the method of compliance with this Subpart from Section 218.207 to Section 218.204 or Section 218.205, the owner or operator shall comply with all requirements of subsection (c)(1) or (d)(1) of this Section, respectively. Upon changing the method of compliance with this subpart from Section 218.207 to Section 218.204 or Section 218.205, the owner or operator shall comply with all requirements of subsection (c) or (d) of this Section, respectively.

## SUBPART G: USE OF ORGANIC MATERIAL

## Section 218.301 Use of Organic Material

No person shall cause or allow the discharge of more than 3.6 kg/hr (8 lbs/hr) of organic material into the atmosphere from any emission source, except as provided in Sections 218.302, 218.303, 218.304 and the following exception: If no odor nuisance exists the limitation of this Subpart shall apply only to photochemically reactive material.

## Section 218.302 Alternative Standard

Emissions of organic material in excess of those permitted by Section 218.301 are allowable if such emissions are controlled by one of the following methods:

- a) Flame, thermal or catalytic incineration so as either to reduce such emissions to 10 ppm equivalent methane (molecular weight 16) or less, or to convert 85 percent of the hydrocarbons to carbon dioxide and water; or.
- b) A vapor recovery system which adsorbs and/or condenses at least 85 percent of the total uncontrolled organic material that would otherwise be emitted to the atmosphere; or.
- c) Any other air pollution control equipment approved by the Agency and approved by the USEPA as a SIP revision capable of reducing by 85

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percent or more the uncontrolled organic material that would be otherwise emitted to the atmosphere.

## Section 218.303 Fuel Combustion Emission Sources

The provisions of Sections 218.301 and 218.302 shall not apply to fuel combustion emission sources.

## Section 218.304 Operations with Compliance Program

The provisions of Sections 218.301 and 218.302 shall not apply to any owner, operator, user or manufacturer of paint, varnish, lacquer, coatings or printing ink whose compliance program and project completion schedule, as required by 35 Ill. Adm. Code 201, provided for the reduction of organic material used in such process to 20 percent or less of total volume by May 30, 1977.

## SUBPART H: PRINTING AND PUBLISHING

## Section 218.401 Flexographic and Rotogravure Printing

- a) No owner or operator of a subject flexographic, packaging rotogravure or publication rotogravure printing line shall apply at any time any coating or ink unless the VOM content does not exceed the limitation specified in either subsection (a)(1) or (a)(2) below. Compliance with this Section must be demonstrated through the applicable coating or ink analysis test methods and procedures specified in Section 218.105(a) and the recordkeeping and reporting requirements specified in Section 218.404(c). As an alternative to compliance with this subsection, a subject printing line may meet the requirements of subsection (b) or (c) below.

1) Forty percent VOM by volume of the coating and ink (minus water and any compounds which are specifically exempted from the definition of VOM), or

2) Twenty-five percent VOM by volume of the volatile content in the coating and ink.

- b) No owner or operator of a subject flexographic, packaging rotogravure or publication rotogravure printing line shall apply coatings or inks on the subject printing line unless the weighted average, by volume, VOM content of all coatings and inks as applied each day on the subject printing line does not exceed the limitation specified in either subsection (a)(1) (as determined by subsection (b)(1) or subsection (a)(1)) (as determined by subsection (b)(2)). Compliance with this subsection must be demonstrated through the applicable coating or ink analysis test methods and procedures specified in



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Section 218.105(a) and the recordkeeping and reporting requirements specified in Section 218.404(d).

- 1) The following equation shall be used to determine if the weighted average VOM content of all coatings and inks as applied each day on the subject printing line exceeds the limitation specified in subsection (a)(1).

$$VOM_{(1)(A)} = \frac{\sum_{i=1}^n C_i L_i (V_{s_i} + V_{VOM,i})}{\sum_{i=1}^n L_i (V_{s_i} + V_{VOM,i})}$$

Where:

$VOM_{(1)(A)}$  = The weighted average VOM content in units of percent VOM by volume of all coatings and inks (minus water and any compounds which are specifically exempted from the definition of VOM) used each day.

$i$  = Subscript denoting a specific coating or ink as applied.

$n$  = The number of different coatings and/or inks as applied each day on a printing line.

$C_i$  = The VOM content in units of percent VOM by volume of each coating or ink as applied (minus water and any compounds which are specifically exempted from the definition of VOM).

$L_i$  = The liquid volume of each coating or ink as applied in units of l (gal).

$V_{s_i}$  = The volume fraction of solids in each coating or ink as applied, and

$V_{VOM,i}$  = The volume fraction of VOM in each coating or ink as applied.

- 2) The following equation shall be used to determine if the weighted average VOM content of all coatings and inks as applied each day on the subject printing line exceeds the limitation specified in subsection (a)(2).

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$$VOM_{(1)(B)} = \frac{\sum_{i=1}^n C_i L_i V_{VOM,i}}{\sum_{i=1}^n L_i V_{VOM,i}}$$

where:

$VOM_{(1)(B)}$  = The weighted average VOM content in units of percent VOM by volume of the volatile content of all coatings and inks used each day.

$i$  = Subscript denoting a specific coating or ink as applied.

$n$  = The number of different coatings and/or inks as applied each day on each printing line.

$C_i$  = The VOM content in units of percent VOM by volume of the volatile matter in each coating or ink as applied.

$L_i$  = The liquid volume of each coating or ink as applied in units of l (gal), and

$V_{VOM,i}$  = The volume fraction of volatile matter in each coating or ink as applied.

- c) No owner or operator of a subject flexographic, packaging rotogravure or publication rotogravure printing line equipped with a capture system and control device shall operate the subject printing line unless the owner or operator meets the requirements in subsection (c)(1), (c)(2), or (c)(3) and subsections (c)(4), (c)(5) and (c)(6) below.

1) A carbon adsorption system is used which reduces the captured VOM emissions by at least 90 percent by weight, or

2) An incineration system is used which reduces the captured VOM emissions by at least 90 percent by weight, or

3) An alternative VOM emission reduction system is used which is demonstrated to have at least a 90 percent control device efficiency, approved by the Agency and approved by USEPA as a SIP revision, and

4) The printing line is equipped with a capture system and control



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device that provides an overall reduction in VOM emissions of at least:

- A) 75 percent where a publication rotogravure printing line is employed, or
- B) 65 percent where a packaging rotogravure printing line is employed, or
- C) 60 percent where a flexographic printing line is employed, and

4) The control device is equipped with the applicable monitoring equipment specified in Section 218.105(d)(2) and the monitoring equipment is installed, calibrated, operated and maintained according to vendor specifications at all times the control device is in use, and

5) The capture system and control device are operated at all times when the subject printing line is in operation. The owner or operator shall demonstrate compliance with this subsection by using the applicable capture system and control device test methods and procedures specified in Section 218.105(c) through Section 218.105(f) and by complying with the recordkeeping and reporting requirements specified in Section 218.404(e).

## Section 218.402 Applicability

a) The limitations of Section 218.401 apply to all flexographic and rotogravure printing lines at a subject facility. All facilities with flexographic and/or rotogravure printing lines are subject facilities unless:

- 1) Total maximum theoretical emissions of VOM from all flexographic and rotogravure printing line(s) at the facility never exceed 90.7 Mg (100 tons) per calendar year before the application of capture systems and control devices, or
- 2) A federally enforceable construction permit or SIP revision for all flexographic and rotogravure printing line(s) at a facility requires the owner or operator to limit production or capacity of these printing line(s) to reduce total VOM emissions from all flexographic and rotogravure printing line(s) to 90.7 Mg (100 tons) or less per calendar year before the application of capture systems and control devices.

b) Upon achieving compliance with this Subpart, the emission source is not required to meet Subpart G (Sections 218.301 or 218.302).

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Emission sources exempt from this Subpart are subject to Subpart G (Sections 218.301 or 215.802). Rotogravure or flexographic equipment used for both roll printing and paper coating is subject to this Subpart.

c) Once subject to the limitations of Section 218.401, a flexographic or rotogravure printing line is always subject to the limitations of Section 218.401.

d) Any owner or operator of any flexographic or rotogravure printing line that is exempt from the limitations of Section 218.401 because of the criteria in this Section is subject to the recordkeeping and reporting requirements specified in Section 218.404(b).

## Section 218.403 Compliance Schedule

Every owner or operator of a flexographic and/or rotogravure printing line shall comply with the applicable requirements of Section 218.401 and Section 218.404 in accordance with the applicable compliance schedule specified in subsection (a), (b), (c) or (d) below:

a) No owner or operator of a flexographic or rotogravure printing line which is exempt from the limitations of Section 218.401 because of the criteria in Section 218.402 shall operate said printing line on or after a date consistent with Section 218.106, unless the owner or operator has complied with, and continues to comply with, Section 218.404(b).

b) No owner or operator of a flexographic or rotogravure printing line complying by means of Section 218.401(a) shall operate said printing line on or after a date consistent with Section 218.106, unless the owner or operator has complied with, and continues to comply with, Section 218.401(a) and Section 218.404(c).

c) No owner or operator of a flexographic or rotogravure printing line complying by means of Section 218.401(b) shall operate said printing line on or after a date consistent with Section 218.106, unless the owner or operator has complied with, and continues to comply with, Section 218.401(b) and Section 218.404(d).

d) No owner or operator of a flexographic or rotogravure printing line complying by means of Section 218.401(c) shall operate said printing line on or after a date consistent with Section 218.106, unless the owner or operator has complied with, and continues to comply with, Section 218.401(c) and Section 218.404(e).

## Section 218.404 Recordkeeping and Reporting

a) The VOM content of each coating and ink and the efficiency of each



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capture system and control device shall be determined by the applicable test methods and procedures specified in Section 218.105 to establish the records required under this Section.

- b) Any owner or operator of a printing line which is exempted from the limitations of Section 218.401 because of the criteria in Section 218.402 shall comply with the following:
- 1) By a date consistent with Section 218.106, the owner or operator of a facility to which this subsection is applicable shall certify to the Agency that the facility is exempt under the provisions of Section 218.402. Such certification shall include:

- A) A declaration that the facility is exempt from the limitations of the criteria in Section 218.401 because of Section 218.402, and
- B) Calculations which demonstrate that total maximum theoretical emissions of VOM from all flexographic and rotogravure printing lines at the facility never exceed 90.7 Mg (100 tons) per calendar year before the application of capture systems and control devices. Total maximum theoretical emissions of VOM for a flexographic or rotogravure printing facility is the sum of maximum theoretical emissions of VOM from each flexographic and rotogravure printing line at the facility. The following equation shall be used to calculate total maximum theoretical emissions of VOM per calendar year before the application of capture systems and control devices for each flexographic and rotogravure printing line at the facility:

$$E_p = A \times B$$

where:

$E_p$  = Total maximum theoretical emissions of VOM from one flexographic or rotogravure printing line in units of kg/year (lbs/year),

$A$  = Weight of VOM per volume of solids of the coating or ink with the highest VOM content as applied each year on the printing line in units of kg VOM/l (lbs VOM/gal) of coating or ink solids, and

$B$  = Total volume of solids for all coatings and inks that can potentially be applied each year on the printing line in units of l/year (gal/year). The instrument and/or method by which the owner or

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operator accurately measured or calculated the volume of each coating and ink as applied and the amount that can potentially be applied each year on the printing line shall be described in the certification to the Agency.

- 2) On and after a date consistent with Section 218.106, the owner or operator of a facility referenced in this subsection shall collect and record all of the following information each year for each printing line and maintain the information at the facility for a period of three years:

- A) The name and identification number of each coating and ink as applied on each printing line.
- B) The VOM content and the volume of each coating and ink as applied each year on each printing line.

- 3) On and after a date consistent with Section 218.106, the owner or operator of a facility exempted from the limitations of Section 218.401 because of the criteria in Section 218.402 shall notify the Agency of any record showing that total maximum theoretical emissions of VOM from all printing lines exceed 90.7 Mg (100 tons) in any calendar year before the application of capture systems and control devices by sending a copy of such record to the Agency within 30 days after the exceedance occurs.

- c) Any owner or operator of a printing line subject to the limitations of Section 218.401 and complying by means of Section 218.401(a) shall comply with the following:

- 1) By a date consistent with Section 218.106, or upon initial start-up of a new printing line, or upon changing the method of compliance from an existing subject printing line from Section 218.401(b) or Section 218.401(c) to Section 218.401(a), the owner or operator of a subject printing line shall certify to the Agency that the printing line will be in compliance with Section 218.401(a) on and after a date consistent with Section 218.106, or on and after the initial start-up date. Such certification shall include:

- A) The name and identification number of each coating and ink as applied on each printing line.
- B) The VOM content of each coating and ink as applied each day on each printing line.

- 2) On and after a date consistent with Section 218.106, or on and after the initial start-up date, the owner or operator of a



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printing line subject to the limitations of Section 218.401 and complying by means of Section 218.401(a) shall collect and record all of the following information each day for each coating line and maintain the information at the facility for a period of three years:

- A) The name and identification number of each coating and ink as applied on each printing line.
- B) The VOM content of each coating and ink as applied each day on each printing line.
- 3) On and after a date consistent with Section 218.106, the owner or operator of a subject printing line shall notify the Agency in the following instances:
  - A) Any record showing violation of Section 218.401(a) shall be reported by sending a copy of such record to the Agency within 30 days following the occurrence of the violation.
  - B) At least 30 calendar days before changing the method of compliance with Section 218.401 from Section 218.401(a) to Section 218.401(b) or (c), the owner or operator shall comply with all requirements of subsection (b)(1) or (c)(1), respectively. Upon changing the method of compliance with Section 218.401 from Section 218.401(a) to Section 218.401(b) or (c), the owner or operator shall comply with all requirements of subsection (b) or (c), respectively.

- d) Any owner or operator of a printing line subject to the limitations of Section 218.401 and complying by means of Section 218.401(b) shall comply with the following:

- 1) By a date consistent with Section 218.106, or upon initial start-up of a new printing line, or upon changing the method of compliance for an existing subject printing line from Section 218.401(a) or (c) to Section 218.401(b), the owner or operator of the subject printing line shall certify to the Agency that the printing line will be in compliance with Section 218.401(b) on and after a date consistent with Section 218.106, or on and after the initial start-up date. Such certification shall include:

- A) The name and identification number of each printing line which will comply by means of Section 218.401(b).
- B) The name and identification number of each coating and ink available for use on each printing line.

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- C) The VOM content of each coating and ink as applied each day on each printing line.

- D) The instrument or method by which the owner or operator will accurately measure or calculate the volume of each coating and ink as applied each day on each printing line.

- E) The method by which the owner or operator will create and maintain records each day as required in subsection (b)(2).

- F) An example of the format in which the records required in subsection (b)(2) will be kept.

- 2) On and after a date consistent with Section 218.106, or on and after the initial start-up date, the owner or operator of a printing line subject to the limitations of Section 218.401 and complying by means of Section 218.401(b) shall collect and record all of the following information each day for each printing line and maintain the information at the facility for a period of three years:

- A) The name and identification number of each coating and ink as applied on each printing line.

- B) The VOM content and the volume of each coating and ink as applied each day on each printing line.

- C) The daily-weighted average VOM content of all coatings and inks as applied on each printing line.

- 3) On and after a date consistent with Section 218.106, the owner or operator of a subject printing line shall notify the Agency in the following instances:

- A) Any record showing violation of Section 218.401(b) shall be reported by sending a copy of such record to the Agency within 30 days following the occurrence of the violation.

- B) At least 30 calendar days before changing the method of compliance with Section 218.401 from Section 218.401(b) to Section 218.401(a) or 218.401(c), the owner or operator shall comply with all requirements of subsection (c)(1) or (e)(1), respectively. Upon changing the method of compliance with Section 218.401 from Section 218.401(b) to Section 218.401(a) or (c), the owner or operator shall comply with all requirements of subsection (c) or (e), respectively.



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e) Any owner or operator of a printing line subject to the limitations of Section 218.401 and complying by means of Section 218.401(c) shall comply with the following:

- 1) By a date consistent with Section 218.106, or upon initial start-up of a new printing line, or upon changing the method of compliance for an existing printing line from Section 218.401(a) or (b) to Section 218.401(c), the owner or operator of the subject printing line shall perform all tests and submit to the Agency the results of all tests and calculations necessary to demonstrate that the subject printing line will be in compliance with Section 218.401(c) on and after a date consistent with Section 218.106, or on and after the initial start-up date.
- 2) On and after a date consistent with Section 218.106, or on and after the initial start-up date, the owner or operator of a printing line subject to the limitations of Section 218.401 and complying by means of Section 218.401(c) shall collect and record all of the following information each day for each printing line and maintain the information at the facility for a period of three years:
  - A) Control device monitoring data.
  - B) A log of operating time for the capture system, control device, monitoring equipment and the associated printing line.
  - C) A maintenance log for the capture system, control device and monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages.
- 3) On and after a date consistent with Section 218.106, the owner or operator of a subject printing line shall notify the Agency in the following instances:
  - A) Any record showing violation of Section 218.401(c), shall be reported by sending a copy of such record to the Agency within 30 days following the occurrence of the violation.
  - B) At least 30 calendar days before changing the method of compliance with Section 218.401 from Section 218.401(c) to Section 218.401(a) or (b), the owner or operator shall comply with all requirements of subsection (c)(1) or (d)(1), respectively. Upon changing the method of compliance with Section 218.401 from Section 218.401(c) to Section 218.401(a) or (b), the owner or operator shall

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comply with all requirements of subsection (c) or (d), respectively.

## Section 218.405 Heatset-Web-Offset Lithographic Printing

## a) Applicability

- 1) The limitations of subsection (b) below apply to all heatset-web-offset lithographic printing lines at a subject facility. All facilities with heatset-web-offset lithographic printing lines are subject facilities unless:
  - A) Total maximum theoretical emissions of VOM from all heatset-web-offset lithographic printing lines at the facility never exceed 90.7 Mg (100 tons) per calendar year in the absence of air pollution control equipment, or
  - B) A federally enforceable construction permit or SIP revision for all heatset-web-offset lithographic printing lines(s) at a facility requires the owner or operator to limit production or capacity of these printing line(s) to reduce total VOM emissions from all heatset-web-offset lithographic printing line(s) to 90.7 Mg (100 tons) per calendar year or less in the absence of air pollution control equipment, and
- 2) Any owner or operator of any heatset-web-offset lithographic printing line that is exempt from the limitations in subsection (b) because of the criteria in subsection (a)(1) shall be subject to the recordkeeping and reporting requirements in subsection (c)(1).
  - b) Specific Provisions. No owner or operator of a subject heatset-web-offset printing line may cause or allow the operation of the subject heatset-web-offset printing line unless the owner or operator meets the requirements in subsection (b)(1) or (b)(2) and the requirements in subsections (b)(3) and (b)(4) below.
    - 1) An afterburner system is installed and operated that reduces 90 percent of the VOM emissions from the dryer exhaust, or
    - 2) The fountain solution contains no more than 8 percent, by weight, of VOM and a condensation recovery system is installed and operated that removes at least 75 percent of the non-isopropyl alcohol organic materials from the dryer exhaust, and
    - 3) The control device is equipped with the applicable monitoring equipment specified in Section 218.105(d)(2) and the monitoring



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equipment is installed, calibrated, operated and maintained according to vendor specifications at all times the control device is in use, and

- 4) The control device is operated at all times when the subject printing line is in operation. The owner or operator shall demonstrate compliance with this Section by using the applicable test methods and procedures specified in Section 218.105(a), (d), and (f) and by complying with the recordkeeping and reporting requirements specified in subsection (c) below.
- c) Recordkeeping and Reporting. The VOM content of each fountain solution and ink and the efficiency of each control device shall be determined by the applicable test methods and procedures specified in Section 218.105 to establish the records required under this subsection.
  - 1) Any owner or operator of a printing line which is exempted from the limitations of subsection (b) because of the criteria in subsection (a) shall comply with the following:
    - A) By a date consistent with Section 218.106, the owner or operator of a facility to which subsection (c)(1) is applicable shall certify to the Agency that the facility is exempt under the provisions of subsection (a). Such certification shall include:
      - i) A declaration that the facility is exempt from the limitations of subsection (b) because of the criteria in subsection (a), and
      - ii) Calculations which demonstrate that total maximum theoretical emissions of VOM from all heatset-web-offset lithographic printing lines at the facility never exceed 90.7 Mg (100 tons) per calendar year before the application of air pollution control equipment. Total maximum theoretical emissions of VOM for a heatset-web-offset lithographic printing facility is the sum of maximum theoretical emissions of VOM from each heatset-web-offset lithographic printing line at the facility. The following equation shall be used to calculate total maximum theoretical emissions of VOM per calendar year in the absence of air pollution control equipment for each heatset-web-offset lithographic printing line at the facility.

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$$E_p = (A \times B) + \frac{(C \times D)}{100}$$

where:

- $E_p$  = Total maximum theoretical emissions of VOM from one heatset-web-offset printing line in units of kg/year (lbs/year),
- $A$  = Weight of VOM per volume of solids of ink with the highest VOM content as applied each year on the printing line in units of kg VOM/l (lbs VOM/gal) of solids, and
- $B$  = Total volume of solids for all inks that can potentially be applied each year on the printing line in units of l/year (gal/year). The instrument or method by which the owner or operator accurately measured or calculated the volume of each ink as applied and the amount that can potentially be applied each year on the printing line shall be described in the certification to the Agency.
- $C$  = The weight percent VOM of the fountain solution with the highest VOM content.
- $D$  = The total volume of fountain solution that can potentially be used each year on the printing line in units of l/year (gal/year). The instrument and/or method by which the owner or operator accurately measured or calculated the volume of each fountain solution used and the amount that can potentially be used each year on the printing line shall be described in the certification to the Agency.
- B) On and after a date consistent with Section 218.106, the owner or operator of a facility to which subsection (c)(1) is applicable shall collect and record all of the following information each year for each printing line and maintain the information at the facility for a period of three years:
- i) The name and identification of each fountain solution and ink as applied on each printing line.
  - ii) The VOM content and the volume of each fountain solution and ink as applied each year on each printing line.



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- C) On and after a date consistent with Section 218.106, the owner or operator of a facility exempted from the limitations of subsection (b) because of the criteria in subsection (a) shall notify the Agency of any record showing that total maximum theoretical emissions of VOM from all printing lines exceed 90.7 Mg (100 tons) in any calendar year in the absence of air pollution control equipment by sending a copy of such record to the Agency within 30 days after the exceedance occurs.
- 2) Any owner or operator of a printing line subject to the limitations of subsection (b) and complying by means of subsection (b)(1) shall comply with the following:
- A) By a date consistent with Section 218.106, or upon initial start-up of a new printing line, or upon changing the method of compliance for an existing printing line from subsection (b)(2) to subsection (b)(1); the owner or operator of the subject printing line shall perform all tests and submit to the Agency the results of all tests and calculations necessary to demonstrate that the subject printing line will be in compliance with subsection (b)(1) on and after a date consistent with Section 218.106, or on and after the initial start-up date.
- B) On and after a date consistent with Section 218.106, or on and after the initial start-up date, the owner or operator of a printing line subject to the limitations of subsection (b) and complying by means of subsection (b)(1) shall collect and record the following information each day for each printing line and maintain the information at the facility for a period of three years:
- i) Control device monitoring data.
  - ii) A log of operating time for the control device, monitoring equipment and the associated printing line.
  - iii) A maintenance log for the control device and monitoring equipment detailing all routine and nonroutine maintenance performed including dates and duration of any outages.
- C) On and after a date consistent with Section 218.106, the owner or operator of a subject printing line shall notify the Agency in the following instances:
- 1) Any record showing violation of subsection (b)(1) shall be reported by sending a copy of such record to

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the Agency within 30 days following the occurrence of the violation.

- ii) At least 30 calendar days before changing the method of compliance with subsection (b) from subsection (b)(1) to (b)(2), the owner or operator shall comply with all requirements of subsection (c)(3)(A). Upon changing the method of compliance with subsection (b) from subsection (b)(1) to (b)(2), the owner or operator shall comply with all requirements of subsection (c)(3).
- 3) Any owner or operator of a printing line subject to the limitations of subsection (b) and complying by means of subsection (b)(2) shall comply with the following:
- A) By a date consistent with Section 218.106, or upon initial start-up of a new printing line, or upon changing the method of compliance for an existing printing line from subsection (b)(1) to (b)(2); the owner or operator of the subject printing line shall perform all tests and submit to the Agency and the USEPA the results of all tests and calculations necessary to demonstrate that the subject printing line will be in compliance with subsection (b)(2) on and after a date consistent with Section 218.106, or on and after the initial start-up date.
- B) On and after a date consistent with Section 218.106, or on and after the initial start-up date, the owner or operator of a printing line subject to the limitations of subsection (b) and complying by means of subsection (b)(2) shall collect and record the following information each day for each printing line and maintain the information at the facility for a period of three years:
- i) The VOM content of the fountain solution used each day on each printing line.
  - ii) A log of operating time for the control device and the associated printing line.
  - iii) A maintenance log for the control device detailing all routine and non-routine maintenance performed including dates and duration of any outages.
- C) On and after a date consistent with Section 218.106, the owner or operator of a subject printing line shall notify the Agency in the following instances:



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- 1) Any record showing violation of subsection (b)(2) shall be reported by sending a copy of such record to the Agency within 30 days following the occurrence of the violation.
- ii) At least 30 calendar days before changing the method of compliance with subsection (b) from subsection (b)(2) to (b)(1), the owner or operator shall comply with all requirements of subsection (c)(2)(A). Upon changing the method of compliance with subsection (b) from subsection (b)(2) to (b)(1), the owner or operator shall comply with all requirements of subsection (c)(2).

d) Compliance Schedule. Every owner or operator of a heatset-web-offset lithographic printing line shall comply with the applicable requirements of subsections (b) and (c) in accordance with the applicable compliance schedule specified in subsection (d)(1), (d)(2), or (d)(3) below:

- 1) No owner or operator of a heatset-web-offset lithographic printing line which is exempt from the limitations of subsection (b) because of the criteria in subsection (a) shall operate said printing line on or after a date consistent with Section 218.106, unless the owner or operator has complied with, and continues to comply with, subsection (b)(1) and (c)(1).
- 2) No owner or operator of a heatset-web-offset lithographic printing line complying by means of subsection (b)(1) shall operate said printing line on or after a date consistent with Section 218.106, unless the owner or operator has complied with, and continues to comply with, subsection (b)(2) and (c)(2).
- 3) No owner or operator of a heatset-web-offset lithographic printing line complying by means of subsection (b)(2) shall operate said printing line on or after a date consistent with Section 218.106, unless the owner or operator has complied with, and continues to comply with, subsection (c)(3).

SUBPART Q: LEAKS FROM SYNTHETIC ORGANIC CHEMICAL  
AND POLYMER MANUFACTURING EQUIPMENT

## Section 218.421 General Requirements

The owner or operator of a plant which processes more than 3660 mg/yr (4033 tons/year) gaseous and light liquid VOM, and whose components are used to manufacture the synthetic organic chemicals or polymers listed in Appendix A, shall comply with this Subpart. The provisions of this Subpart are applicable

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to components containing 10 percent or more by weight VOM as determined by ASTM method E-168, E-169 and E-260, incorporated by reference in Section 218.112. Those components that are not process unit components are exempt from this Subpart. A component shall be considered to be leaking if the VOM is equal to, or is greater than 10,000 ppmv as methane or hexane as determined by USEPA Reference Method 21, as specified at 40 CFR 60, Appendix A, incorporated by reference in Section 218.112. Indication of liquids dripping, or indication by a sensor that a seal or barrier fluid system has failed. The provisions of this Subpart are not applicable if the equipment components are used to produce heavy liquid chemicals only from heavy liquid feed or raw materials.

## Section 218.422 Inspection Program Plan for Leaks

The owner or operator of a synthetic organic chemical or polymer manufacturing plant subject to Section 218.421 shall prepare an inspection program plan which contains, at a minimum:

- a) An identification of all components and the period in which each will be monitored pursuant to Section 218.423.
- b) The format for the monitoring log required by Section 218.425.
- c) A description of the monitoring equipment to be used when complying with Section 218.423, and
- d) A description of the methods to be used to identify all pipeline valves, pressure relief valves in gaseous service, all leaking components, and components exempted under Section 218.423(i) such that they are obvious and can be located by both plant personnel performing monitoring and Agency personnel performing inspections.

## Section 218.423 Inspection Program for Leaks

The owner or operator of a synthetic organic chemical or polymer manufacturing plant subject to this subpart shall, for the purposes of detecting leaks, conduct a component inspection program using the test methods specified in Method 21, 40 CFR 60, Appendix A (1986), incorporated by reference in Section 218.112, consistent with the following provisions:

- a) Test annually those components operated near extreme temperature or pressure such that they would be unsafe to routinely monitor and those components which would require the elevation of monitoring personnel higher than two meters above permanent worker access structures or surfaces.
- b) Test quarterly all other pressure relief valves in gas service, pumps in light liquid service, valves in light liquid service and in gas service, and compressors.



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- c) If less than or equal to 2 percent of the valves in light liquid service and in gas service tested pursuant to subsection (b) are found not to leak for five consecutive quarters, no leak tests shall be required for three consecutive quarters. Thereafter, leak tests shall resume for the next quarter. If that test shows less than or equal to 2 percent of the valves in light liquid service and in gas service are leaking, then no tests are required for the next three quarters. If more than 2 percent are leaking, then tests are required for the next five quarters.
- d) Observe visually all pump seals weekly.
- e) Test immediately any pump seal from which liquids are observed dripping.
- f) Test any relief valve within 24 hours after it has vented to the atmosphere.
- g) Routine instrument monitoring of valves which are not externally regulated, flanges, and equipment in heavy liquid service, is not required. However, any valve which is not externally regulated, flange or piece of equipment in heavy liquid service that is found to be leaking on the basis of sight, smell or sound shall be repaired as soon as practicable but no later than 30 days after the leak is found.
- h) Test immediately after repair any component that was found leaking.
- i) Within one hour of its detection, a weatherproof, readily visible tag, in bright colors such as red or yellow, bearing an identification number and the date on which the leak was detected must be affixed on the leaking component and remain in place until the leaking component is repaired.
- j) The following components are exempt from the monitoring requirements in this Section:
  - 1) Any component that is in vacuum service, and
  - 2) Any pressure relief valve that is connected to an operating flare header or vapor recovery device.

## Section 218.424 Repairing Leaks

All leaking components must be repaired and retested as soon as practicable but no later than 15 days after the leak is found unless the leaking component cannot be repaired until the process unit is shut down. Records of repairing and retesting must be maintained in accordance with Section 218.425 and 218.426.

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## Section 218.425 Recordkeeping for Leaks

- a) The owner or operator of a synthetic organic chemical or polymer manufacturing plant shall maintain a leaking components monitoring log which shall contain, at a minimum, the following information:
  - 1) The name of the process unit where the component is located;
  - 2) The type of component (e.g., valve, seal);
  - 3) The identification number of the component;
  - 4) The date on which a leaking component is discovered;
  - 5) The date on which a leaking component is repaired;
  - 6) The date and instrument reading of the recheck procedure after a leaking component is repaired;
  - 7) A record of the calibration of the monitoring instrument;
  - 8) The identification number of leaking components which cannot be repaired until process unit shutdown; and
  - 9) The total number of valves in light liquid service and in gas service inspected; the total number and the percentage of these valves found leaking during the monitoring period.
- b) Copies of the monitoring log shall be retained by the owner or operator for a minimum of two years after the date on which the record was made or the report was prepared.
- c) Copies of the monitoring log shall be made available to the Agency upon verbal or written request prior to or at the time of inspection pursuant to Section 4(d) of the Environmental Protection Act (Act) (Ill. Rev. Stat. 1989, ch. 111 1/2, pars. 1001 et seq.) at any reasonable time.

## Section 218.426 Report for Leaks

The owner or operator of a synthetic organic chemical or polymer manufacturing plant subject to Section 218.421 through 218.430 shall:

- a) Submit quarterly reports to the Agency on or before March 31, June 30, September 30, and December 31 of each year, listing all leaking components identified pursuant to Section 218.423 but not repaired within 15 days, all leaking components awaiting process unit shutdown, the total number of components inspected, the type of



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components inspected, and the total number of components found leaking, the total number of valves in light liquid service and in gas service inspected and the number and percentage of valves in light liquid service and in gas service found leaking.

- b) Submit a signed statement with the report attesting that all monitoring and repairs were performed as required under Section 218.421 through 218.427.

## Section 218.427 Alternative Program for Leaks

The Agency shall approve an alternative program of monitoring, recordkeeping, or reporting to that prescribed in this Subpart upon a demonstration by the owner or operator of such plant that the alternative program will provide plant personnel and Agency personnel with an equivalent ability to identify and repair leaking components. Any alternative program can be allowed if approved by the Agency and approved by the USEPA as a SIP revision.

## Section 218.428 Open-Ended Valves

- a) Each open-ended valve shall be equipped with a cap, blind flange, plug, or a second valve, except during operations requiring fluid flow through the open-ended valve.
- b) Each open-ended valve equipped with a second valve shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed.
- c) Components which are open-ended valves and which serve as a sampling connection shall be controlled such that:

- 1) A closed purge system or closed vent system shall return purged process fluid to the process line with no detectable VOM emissions to the atmosphere, or
- 2) A closed purge system or closed vent system shall collect and recycle purged process fluid to the process line with no detectable VOM emissions to the atmosphere, or
- 3) Purged process fluid shall be transported to a control device that complies with the requirements of Section 218.429.
- d) In-situ sampling systems are exempt from subsection (c).

## Section 218.429 Standards for Control Devices

Control devices used to comply with Section 218.428(c) shall comply with the following:

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- a) If the control device is a vapor recovery system (for example, condensers and adsorbers), it shall be designed and operated to recover the VOM emissions vented to it with an efficiency of 95 percent or greater.
- b) If the control device is an enclosed combustion device, it shall be designed and operated to reduce the VOM emissions vented to it with an efficiency of 95 percent or greater, or to provide a minimum residence time of 0.75 seconds at a minimum temperature of 816°C.
- c) If the control device is a flare, it shall:
  - 1) Be designed for and operated with no visible emissions as determined by USEPA Reference Method 22, 40 CFR 60, Appendix A (1986), incorporated by reference in Section 218.112, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.

- 2) Be operated with a pilot flame present at all times and shall be monitored with a thermocouple or any other equivalent device to detect the presence of the pilot flame.

- 3) Be steam-assisted, air assisted, or nonassisted.

- 4) Be used only with the net heating value of the gas being combusted being 11.2 MJ/scm (300 Btu/scf) or greater if the flare is steam-assisted or air-assisted; or with the net heating value of the gas being combusted being 7.45 MJ/scm or greater if the flare is nonassisted. The net heating value of the gas being combusted shall be calculated using the following equation:

$$H_r = K \sum_{i=1}^n C_i H_i$$

Where:

$H_r$  = Net heating value of the sample in MJ/scm; where the net enthalpy per mole of offgas is based on combustion at 25°C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20°C.

$K$  = Constant,

$$1.740 \times 10^{-7} \text{ (1/ppm)(g-mole/scm)(MJ/Kcal)}$$

where

standard temperature for (g-mole/scm) is 20°C.



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C. = Concentration of sample component i, in ppm, as measured by USEPA Reference Method 18, 40 CFR 60, Appendix A (1986), and ASTM D 2504-83, both incorporated by reference in Section 218.112.

H. = Net heat of combustion of sample component i, kcal/g mole. The heats of combustion may be determined using ASTM D 2382-83, incorporated by reference in Section 218.112, if published values are not available or cannot be calculated.

5) Steam-assisted and nonassisted flares shall be designed and operated with an exit velocity, as determined by dividing the volumetric flowrate (in units of standard temperature and pressure), as determined by USEPA Reference Method 2 or 2A, 40 CFR 60, Appendix A (1986) incorporated by reference in Section 218.112, as appropriate; by the unobstructed (free) cross sectional area of the flare tip, less than 18 m/sec (60 ft/sec).

6) Air-assisted flares shall be designed and operated with an exit velocity less than the maximum permitted velocity,  $V_{max}$ , as determined by the following equation:

$$V_{max} = 8.706 + 0.7084(H_r)$$

$$V_{max} = \text{Maximum permitted velocity, m/sec.}$$

$$8.706 = \text{Constant.}$$

$$0.7084 = \text{Constant.}$$

$$H_r = \text{The net heating value as determined in subsection (c)(4) of this section.}$$

d) If the control device is a closed container, it shall be designed and operated to reduce the VOM emissions, vented from purged process fluid after transfer, to no detectable VOM emissions as determined by USEPA Reference Method 21 as specified at 40 CFR 60, Appendix A (1986), incorporated by reference in Section 218.112. For purposes of this Section, the phrase "after transfer" shall refer to the time at which the entire amount of purged process fluid resulting from a flushing or cleaning of the sample line enters the closed container or containers including the final container(s) prior to disposal.

e) The owner or operator of a control device shall monitor the control device to ensure that it is operated and maintained in conformance with the manufacturer's specifications, modified to the particular process design.

f) The control device shall be operated at all times when emissions may be vented to it.

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## Section 218.430 Compliance Date

The owner or operator of a synthetic organic chemical or polymer manufacturing plant subject to 35 Ill. Adm. Code 215.430 through 215.438 as of December 31, 1987 shall have complied with the standards and limitations of those Sections no later than December 31, 1987.

## SUBPART R: PETROLEUM REFINING AND RELATED INDUSTRIES: ASPHALT MATERIALS

## Section 218.441 Petroleum Refinery Waste Gas Disposal

a) Except as provided in subsection (b) or (c), no person shall cause or allow the discharge of organic materials in excess of 100 ppm equivalent methane (molecular weight 16.0) into the atmosphere from:

- 1) Any catalyst regenerator of a petroleum cracking system; or
- 2) Any petroleum fluid coker; or
- 3) Any other waste gas stream from any petroleum or petrochemical manufacturing process.

b) Exception. Existing sources subject to subsection (a)(3) may, alternatively, at their election, comply with the organic material emission limitations imposed by 35 Ill. Adm. Code 215.301 or 215.302; provided, however, that there shall be no increase in emissions from such sources above the level of emissions in existence on May 3, 1979.

c) New Sources. Sources subject to subsection (a)(3), construction of which commenced on or after January 1, 1977, may, at their election, comply with the following emission limitations:

- 1) A maximum of eight pounds per hour of organic material; or
- 2) Emission of organic material in excess of the limitation of subsection (c)(1) is allowable if such emissions are controlled by air pollution control methods or equipment approved by the Agency capable of reducing by 85 percent or more the uncontrolled organic material that would otherwise be emitted to the atmosphere. Such methods or equipment must be approved by the Agency and approved by the USEPA as a SIP revision.

## Section 218.442 Vacuum Producing Systems

No owner or operator of a petroleum refinery shall cause or allow the operation of any vacuum producing system unless the condensers, hot wells and accumulators of any such system are equipped with vapor loss control equipment including, but not limited to, piping, valves, flame arrestors and hot well



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covers, to vent any VOM with a vapor pressure of 10.34 kPa (1.5 psia) or greater at 294.3°K (70°F) to a heater, fire box, flare, refinery fuel gas system, or other equipment or system of equal emission control as approved by the Agency and approved by the USEPA as a SIP revision. This Section shall not apply to vacuum producing systems on lube units.

## Section 218.443 Wastewater (Oil/Water) Separator

No owner or operator of a petroleum refinery shall operate any wastewater (oil/water) separator at a petroleum refinery unless the separator is equipped with air pollution control equipment capable of reducing by 85 percent or more the uncontrolled organic material emitted to the atmosphere. If no odor nuisance exists, the limitation of this Section shall not apply if the vapor pressure of the organic material is below 10.34 kPa (1.5 psia) at 204.3°K (70°F) at all times.

## Section 218.444 Process Unit Turnarounds

- a) No owner or operator of a petroleum refinery shall cause or allow a refinery process unit turnaround except in compliance with an operating procedure as approved by the Agency.
- b) Unless a procedure was already on file with the Agency as part of an approved operating permit no later than November 1, 1979, the owner or operator of a petroleum refinery shall submit to the Agency for approval a detailed procedure for reducing emissions of VOM during refinery process unit turnarounds from organic material with a vapor pressure of 10.34 kPa (1.5 psia) or greater at 294.3°K (70°F). The Agency shall not approve the procedure unless it provides for:

- 1) Depressurization of the refinery process unit or vessel to a flare, refinery fuel gas system, or other equipment or system of equal emission control, as approved by the Agency and approved by the USEPA as a SIP revision, until the internal pressure from the vessel or unit is less than 5.0 psig before allowing the vessel to be vented to the atmosphere;

- 2) Recordkeeping of the following items:

- A) Each date that a refinery unit or vessel is shut down; and
- B) The total estimated quantity of VOM emitted to the atmosphere and the duration of the emission in hours.

## Section 218.445 Leaks: General Requirements

- a) The owner or operator of a petroleum refinery shall:

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- 1) Develop a monitoring program plan consistent with the provisions of Section 218.446;
- 2) Conduct a monitoring program consistent with the provisions of Section 218.447;
- 3) Record all leaking components which have a volatile organic material concentration exceeding 10,000 ppm consistent with the provisions of Section 218.448;
- 4) Identify each component consistent with the monitoring program plan submitted pursuant to Section 218.446;
- 5) Repair and retest the leaking components as soon as possible within 22 days after the leak is found, but no later than June 1 for the purposes of Section 218.447(a)(1), unless the leaking components cannot be repaired until the unit is shut down for turnaround; and
- 6) Report to the Agency consistent with the provisions of Section 218.449.

## Section 218.446 Monitoring Program Plan for Leaks

The owner or operator of a petroleum refinery shall prepare a monitoring program plan which contains, at a minimum:

- a) An identification of all refinery components and the period in which each will be monitored pursuant to Section 218.447;
- b) The format for the monitoring log required by Section 218.448;
- c) A description of the monitoring equipment to be used pursuant to Section 218.447; and
- d) A description of the methods to be used to identify all pipeline valves, pressure relief valves in gaseous service and all leaking components such that they are obvious to both refinery personnel performing monitoring and Agency personnel performing inspections.

## Section 218.447 Monitoring Program for Leaks

- a) The owner or operator of a petroleum refinery subject to Section 218.445 shall, for the purpose of detecting leaks, conduct a component monitoring program consistent with the following provisions:
  - 1) Test once between March 1 and June 1 of each year, by methods referenced in Section 218.105(g), all pump seals, pipeline valves in liquid service and process drains.



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- 2) Test once each quarter of each calendar year, by methods referenced in Section 218.105(g), all pressure relief valves in gaseous service, pipeline valves in gaseous service and compressor seals.
- 3) Inaccessible valves may be tested once each calendar year instead of once each quarter of each calendar year.
- 4) Observe visually all pump seals weekly.
- 5) Test immediately any pump seal from which liquids are observed dripping.
- 6) Test any relief valve within 24 hours after it has vented to the atmosphere, and
- 7) Test immediately after repair any component that was found leaking.
- b) Storage tank valves and pressure relief devices connected to an operating flare header or vapor recovery device are exempt from the monitoring requirements in subsection (a).
- c) The Agency or the USEPA may require more frequent monitoring than would otherwise be required by subsection (a) for components which are demonstrated to have a history of leaking.

## Section 218.448 Recordkeeping for Leaks

- a) The owner or operator of a petroleum refinery shall maintain a leaking components monitoring log which shall contain, at a minimum, the following information:
  - 1) The name of the process unit where the component is located;
  - 2) The type of component (e.g., valve, seal);
  - 3) The identification number of the component;
  - 4) The date on which a leaking component is discovered;
  - 5) The date on which a leaking component is repaired;
  - 6) The date and instrument reading of the recheck procedure after a leaking component is repaired;
  - 7) A record of the calibration of the monitoring instrument;

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- 8) The identification number of leaking components which cannot be repaired until turnaround; and
- 9) The total number of components inspected and the total number of components found leaking during that monitoring period.
- b) Copies of the monitoring log shall be retained by the owner or operator for a minimum of two years after the date on which the record was made or the report prepared.
- c) Copies of the monitoring log shall be made available to the Agency, upon verbal or written request, at any reasonable time.

## Section 218.449 Reporting for Leaks

The owner or operator of a petroleum refinery shall:

- a) Submit a report to the Agency prior to the 1st day of both July and September listing all leaking components identified pursuant to Section 218.447 but not repaired within 22 days, all leaking components awaiting unit turnaround, the total number of components inspected and the total number of components found leaking;
- b) Submit a signed statement with the report attesting that all monitoring and repairs were performed as required under Sections 218.445 through 218.448.

## Section 218.450 Alternative Program for Leaks.

The Agency may approve an alternative program of monitoring, recordkeeping or reporting to that prescribed in Sections 218.446 through 218.449 upon a demonstration by the owner or operator of a petroleum refinery that the alternative program will provide refinery, Agency and USEPA personnel with an equivalent ability to identify and repair leaking components. Any alternative program can be allowed only if approved by the USEPA as a SIP revision.

## Section 218.451 Sealing Device Requirements

Except for safety pressure relief valves, no owner or operator of a petroleum refinery shall install or operate a valve at the end of a pipe or line containing VOMs unless the pipe or line is sealed with a second valve, blind flange, plug, cap or other sealing device. The sealing device may be removed only when a sample is being taken or during maintenance operations.

## Section 218.452 Compliance Schedule for Leaks

The owner or operator of a petroleum refinery shall adhere to the increments of progress contained in the following schedule:



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- a) Have submitted to the USEPA a monitoring program consistent with Section 218.446 prior to September 1, 1990.
- b) Have submitted to the USEPA the first monitoring report pursuant to Section 218.449 prior to October 1, 1990.

## Section 218.453 Compliance Dates

Every owner or operator of a petroleum refinery subject to 35 Ill. Adm. Code 215, Subpart R as of December 31, 1987 shall have complied with its standards and limitations by December 31, 1987.

## SUBPART S: RUBBER AND MISCELLANEOUS PLASTIC PRODUCTS

## Section 218.461 Manufacture of Pneumatic Rubber Tires

The owner or operator of an undertread cementing, treadend cementing or bead dipping operation at a pneumatic rubber tire manufacturing facility shall install and operate:

- a) A capture system, with minimum capture efficiency of 65 percent by weight of VOM for treadend cementing or bead dipping operations and a capture system with a minimum capture efficiency of 55.5 percent by weight of VOM for undertread cementing; and
- b) A control device that meets the requirements of one of the following:

- 1) A carbon adsorption system designed and operated in a manner such that there is at least a 90 percent removal of VOM by weight from the gases ducted to the control device;
- 2) An afterburning system that oxidizes at least 90 percent of the captured nonmethane VOMs (VOM measured as total combustible carbon) to carbon dioxide and water; and
- 3) An alternative VOM emission reduction system demonstrated to have at least a 90 percent overall reduction efficiency and approved by the Agency and approved by the USEPA as a SIP revision.

## Section 218.462 Green Tire Spraying Operations

The owner or operator of a green tire spraying operation at a pneumatic rubber tire manufacturing facility shall:

- a) Install and operate:
  - 1) A capture system with a minimum capture efficiency of 90 percent by weight of VOM; and

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- 2) A control device that meets the requirements of one of the following:
  - A) A carbon adsorption system designed and operated in a manner such that there is at least 90 percent removal of VOM by weight from the bases ducted to the control device;
  - B) An afterburning system that oxidizes at least 90 percent of the captured nonmethane VOM (measured as total combustible carbon) to carbon dioxide and water; or
  - C) An alternative VOM emission reduction system demonstrated to have at least a 90 percent overall reduction efficiency and approved by the Agency and approved by the USEPA as a SIP revision.

- b) Substitute for the normal solvent-based mold release compound water-based sprays containing:

- 1) No more than five percent by volume of VOM as applied for the inside of tires;
- 2) No more than ten percent by volume of VOM as applied for the outside of tires.

## Section 218.463 Alternative Emission Reduction Systems

In lieu of complying with Section 218.461 or 218.462, the owner or operator of an emission source may utilize an alternative volatile organic emission reduction system, including an alternative production process, which is demonstrated to be equivalent to Section 218.461 or 218.462 on the basis of emissions of volatile organic matter. A treadend cementing operation shall be considered equivalent to Section 218.461 or 218.462 for the purposes of this Section if the total volatile organic emission from such operation is 10 grams or less per tire.

## Section 218.464 Testing and Monitoring

- a) Upon a reasonable request by the Agency, the owner or operator of a VOM emission source required to comply with a limit of Sections 218.461 through 218.464 shall conduct emissions testing, at such person's own expense, to demonstrate compliance.
- b) A person planning to conduct a VOM emission test to demonstrate compliance shall notify the Agency of that intent not less than 30 days before the planned initiation of the tests so the Agency may observe the test.



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## Section 218.465 Compliance Dates

Every owner or operator of an emission source subject to 35 Ill. Adm. Code 215, Subpart S, as of December 31, 1987 shall have complied with its standards and limitations by December 31, 1987.

## Section 218.466 Compliance Plan

- a) The owner or operator of an emission source shall have submitted to the Agency a compliance plan, pursuant to 35 Ill. Adm. Code 201, Subpart H, including a project completion schedule where applicable, no later than April 21, 1983.
- b) Unless the submitted compliance plan or schedule was disapproved by the Agency, the owner or operator of a facility or emission source may operate the emission source according to the plan and schedule as submitted.
- c) The plan and schedule shall meet the requirements of 35 Ill. Adm. Code 201, Subpart H, including specific interim dates as required in 35 Ill. Adm. Code 201.242.

## SUBPART T: PHARMACEUTICAL MANUFACTURING

## Section 218.480 Applicability

- a) The rules of this Subpart, except for Sections 218.483 through 218.485, apply to all emission sources of VOM, including but not limited to reactors, distillation units, dryers, storage tanks for VOL, equipment for the transfer of VOL, filters, crystallizers, washers, laboratory hoods, pharmaceutical coating operations, mixing operations and centrifuges used in manufacturing, including packaging, of pharmaceuticals, and emitting more than 6.8 kg/day (15 lbs/day) and more than 2,268 kg/year (2.5 tons/year) of VOM. If an emission source emits less than 2,268 kg/year (2.5 tons/year) of VOM, the requirements of this Subpart still apply to the emission source if VOM emissions from the emission source exceed 45.4 kg/day (100 lbs/day).
- b) Notwithstanding subsection (a), the air suspension coater/dryer, fluid bed dryers, tunnel dryers, and Accelacotas located in Libertyville Township, Lake County, Illinois shall be exempt from the rules of this Subpart, except for Sections 218.483 through 218.485, if emissions of VOM not vented to air pollution control equipment do not exceed the following levels:

- 1) for the air suspension coater/dryer: 2,268 kg/year (2.5 tons/year);

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- 2) for each fluid bed dryer: 4,535 kg/year (5.0 tons/year);
- 3) for each tunnel dryer: 6,803 kg/year (7.5 tons/year); and
- 4) for each Accelacota: 6,803 kg/year (7.5 tons/year).

c) Sections 218.483 through 218.485 apply to a plant having one or more emission sources that:

- 1) Are used to manufacture pharmaceuticals, and
  - 2) Emit more than 6.8 kg/day (15 lbs/day) of VOM and more than 2,268 kg/year (2.5 tons/year) of VOM, or, if less than 2,268 kg/year (2.5 tons/year), these Sections still apply if emissions from one or more sources exceed 45.4 kg/day (100 lbs/day).
- d) No owner or operator shall violate any condition in a permit when the condition results in exclusion of an emission source from this Subpart.
- e) Any pharmaceutical manufacturing source that becomes subject to the provisions of this Subpart at any time shall remain subject to the provisions of this Subpart at all times.
- f) Emissions subject to this Subpart shall be controlled at all times consistent with the requirements set forth in this Subpart.
- g) Any control device required pursuant to this Subpart shall be operated at all times when the source it is controlling is operated.

h) Determinations of daily and annual emissions for purposes of this Section shall be made using both data on the hourly emission rate (or the emissions per unit of throughput) and appropriate daily and annual data from records of emission source operation (or material throughput or material consumption data). In the absence of representative test data pursuant to Section 218.487 for the hourly emission rate (or the emissions per unit of throughput), such items shall be calculated using engineering calculations, including the methods described in Appendix B of "Control of Volatile Organic Emissions from Manufacturing of Synthesized Pharmaceutical Products" (EPA-450/2-78-029), incorporated by reference in Section 218.112. (This subsection shall not affect the Agency's or the USEPA's authority to require emission tests to be performed pursuant to Section 218.487.)

Section 218.481 Control of Reactors, Distillation Units, Crystallizers, Centrifuges and Vacuum Dryers



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- a) The owner or operator shall equip all reactors, distillation units, crystallizers, centrifuges and vacuum dryers that are used to manufacture pharmaceuticals with surface condensers or other air pollution control equipment listed in subsection (b). If a surface condenser is used, it shall be operated such that the condenser outlet gas temperature does not exceed:

- 1) 248.2°K (-13°F) when condensing VOM of vapor pressure greater than 40.0 kPa (5.8 psi) at 294.3°K (70°F), or
- 2) 258.2°K (5°F) when condensing VOM of vapor pressure greater than 20.0 kPa (2.9 psi) at 294.3°K (70°F), or
- 3) 273.2°K (32°F) when condensing VOM of vapor pressure greater than 10.0 kPa (1.5 psi) at 294.3°K (70°F), or
- 4) 283.2°K (50°F) when condensing VOM of vapor pressure greater than 7.0 kPa (1.0 psi) at 294.3°K (70°F), or
- 5) 298.2°K (77°F) when condensing VOM of vapor pressure greater than 3.45 kPa (0.5 psi) at 294.3°K (70°F).

- b) If a scrubber, carbon adsorber, thermal afterburner, catalytic afterburner, or other air pollution control equipment other than a surface condenser is used, such equipment shall provide a reduction in the emissions of VOM of 90 percent or more.

- c) The owner or operator shall enclose all centrifuges used to manufacture pharmaceuticals and that have an exposed VOL surface, where the VOM in the VOL has a vapor pressure of 3.45 kPa (0.5 psi) or more at 294.3°K (70°F), except as production, sampling, maintenance, or inspection procedures require operator access.

#### Section 218.482 Control of Air Dryers, Production Equipment Exhaust Systems and Filters

- a) The owner or operator of an air dryer or production equipment exhaust system used to manufacture pharmaceuticals shall control the emissions of VOM from such emission sources by air pollution control equipment which reduces by 90 percent or more the VOM that would otherwise be emitted into the atmosphere.

- b) The owner or operator shall enclose all rotary vacuum filters and other filters used to manufacture pharmaceuticals and that have an exposed VOL surface, where the VOM in the VOL has a vapor pressure of 3.45 kPa (0.5 psi) or more at 294°K (70°F), except as production, sampling, maintenance, or inspection procedures require operator access.

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#### Section 218.483 Material Storage and Transfer

The owner or operator of a pharmaceutical manufacturing plant shall:

- a) Provide a vapor balance system that is at least 90 percent effective in reducing VOM emissions from truck or railcar deliveries to storage tanks with capacities equal to or greater than 7.57 m<sup>3</sup> (2,000 gal) that store VOL with vapor pressures greater than 28.0 kPa (4.1 psi) at 294.3°K (70°F), and
- b) Install, operate, and maintain pressure/vacuum conservation vents set at 0.2 kPa (0.03 psi) or greater on all storage tanks that store VOL with vapor pressures greater than 10 kPa (1.5 psi) at 294.3°K (70°F).

#### Section 218.484 In-Process Tanks

The owner or operator shall install covers on all in-process tanks used to manufacture pharmaceuticals and containing a VOL at any time. These covers must remain closed, except as production, sampling, maintenance or inspection procedures require operator access.

#### Section 218.485 Leaks

The owner or operator of a pharmaceutical manufacturing plant shall repair any component from which a leak of VOL can be observed. The repair shall be completed as soon as practicable but no later than 15 days after the leak is found. If the leaking component cannot be repaired until the process unit is shut down, the leaking component must then be repaired before the unit is restarted.

#### Section 218.486 Other Emission Sources

The owner or operator of a washer, laboratory hood, tablet coating operation, mixing operation or any other process emission source not subject to Sections 218.481 through 218.485, and used to manufacture pharmaceuticals shall control the emissions of VOM from such emission sources by:

- a) Air pollution control equipment which reduces by 81 percent or more the VOM that would otherwise be emitted to the atmosphere, or
- b) A surface condenser which captures all the VOM which would otherwise be emitted to the atmosphere and which meets the requirements of Section 218.481(a) and (b).

#### Section 218.487 Testing

- a) Upon request by the Agency or the USEPA, the owner or operator of any VOM emission source subject to this Subpart or exempt from this



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Subpart by virtue of the provisions of Section 218.480 shall, at his own expense, demonstrate compliance to the Agency and the USEPA by the methods or procedures listed in Section 218.105(f)(1).

- b) A person planning to conduct a VOM emissions test to demonstrate compliance with this Subpart shall notify the Agency and the USEPA of that intent not less than 30 calendar days before the planned initiation of the test.

## Section 218.488 Monitoring for Air Pollution Control Equipment

- a) At a minimum, continuous monitors for the following parameters shall be installed on air pollution control equipment used to control sources subject to this Subpart:

- 1) Destruction device combustion temperature.
- 2) Temperature rise across a catalytic afterburner bed.
- 3) VOM concentration on a carbon adsorption unit to determine breakthrough.
- 4) Outlet gas temperature of a refrigerated condenser.
- 5) Temperature of a non-refrigerated condenser coolant supply system.

- b) Each monitor shall be equipped with a recording device.

- c) Each monitor shall be calibrated quarterly.

- d) Each monitor shall operate at all times while the associated control equipment is operating.

## Section 218.489 Recordkeeping for Air Pollution Control Equipment

- a) The owner or operator of a pharmaceutical manufacturing facility shall maintain the following records:

- 1) Parameters listed in Section 218.488(a)(1) shall be recorded.
- 2) For sources subject to Section 218.481, the vapor pressure of VOM being controlled shall be recorded for every process.

- b) For any leak subject to Section 218.485 which cannot be readily repaired within one hour after detection, the following records shall be kept:

- 1) The name of the leaking equipment.

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- 2) The date and time the leak is detected.
- 3) The action taken to repair the leak, and

- 4) The data and time the leak is repaired.

- c) The following records shall be kept for emission sources subject to Section 218.484 which contain VOL:

- 1) For maintenance and inspection:

- A) The date and time each cover is opened.
- B) The length of time the cover remains open, and
- C) The reason why the cover is opened.

- 2) For production and sampling, detailed written procedures or manufacturing directions specifying the circumstances under which covers may be opened and the procedures for opening covers.

- d) For each emission source used in the manufacture of pharmaceuticals for which the owner or operator of a pharmaceutical manufacturing plant claims emission standards are not applicable, because the emissions are below the applicability cutoffs in Section 218.480(a) or 218.480(b), the owner or operator shall:

- 1) Maintain a demonstration including detailed engineering calculations of the maximum daily and annual emissions for each such emission source showing that the emissions are below the applicability cutoffs in Section 218.480(a) or 218.480(b), as appropriate, for the current and prior calendar years;
- 2) Maintain appropriate operating records for each such emission source to identify whether the applicability cutoffs in Section 218.480(a) or 218.480(b), as appropriate, are ever exceeded; and
- 3) Provide written notification to the Agency and the USEPA within 30 days of a determination that such an emission source has exceeded the applicability cutoffs in Section 218.480(a) or 218.480(b), as appropriate.
- e) Records required under subsection (a) shall be maintained by the owner or operator for a minimum of two years after the date on which they are made.
- f) Copies of the records shall be made available to the Agency or the USEPA upon verbal or written request.



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## SUBPART V: AIR OXIDATION PROCESSES

## Section 218.521 Definitions

In addition to the definitions of 35 Ill. Adm. Code 211, the following definitions apply to this Subpart:

"Air Oxidation Process": any unit process including amnoxidation and oxychlorination which uses air or a combination of air and oxygen as an oxidant in combination with one or more organic reactants to produce one or more organic compounds.

"Cost Effectiveness": the annual expense for cost of control of a given process stream divided by the reduction in emissions of organic material of that stream.

"Flow (F)": Vent stream flowrate (scm/min) at a standard temperature of 20°C.

"Full Operating Flowrate": Maximum operating capacity of the facility.

"Hourly Emissions (E)": Hourly emissions reported in kg/hr measured at full operating flowrate.

"Net Heating Value (H)": Vent stream net heating value (MJ/scm), where the net enthalpy per mole of offgas is based on combustion at 25°C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20°C, as in the definition of "Flow."

"Process Vent Stream": An emission stream resulting from an air oxidation process.

"Total Resource Effectiveness Index (TRE)": Cost effectiveness in dollars per megagram of controlling any gaseous stream vented to the atmosphere from an air oxidation process divided by \$1600/Mg, using the criteria and methods set forth in this Subpart and Appendices C and D.

## Section 218.525 Emission Limitations for Air Oxidation Processes

a) No person shall cause or allow the emission of VOM from any process vent stream unless the process vent stream is vented to a combustion device which is designed and operated either:

- 1) To reduce the volatile organic emissions vented to it with an efficiency of at least ninety eight percent (98%) by weight; or

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- 2) To emit VOM at a concentration less than twenty parts per million by volume, dry basis.

b) Air oxidation facilities for which an existing combustion device is employed to control process VOM emissions are not required to meet the 98 percent emissions limit until the combustion device is replaced for other reasons, which shall be considered to include, but not be limited to, normal maintenance, malfunction, accident, and obsolescence. The combustion device is considered to be replaced when:

- 1) All of the device is replaced; or
- 2) When the cost of the repair of the device or the cost of replacement of part of the device exceeds 50% of the cost of replacing the entire device with a device which complies.

c) The limitations of subsection (a) do not apply to any process vent stream or combination of process vent streams which has a Total Resource Effectiveness Index (TRE) greater than 1.0, as determined by the following methods:

- 1) If an air oxidation process has more than one process vent stream, TRE shall be based upon a combination of the process vent streams.

- 2) TRE of a process vent stream shall be determined according to the following equation:

$$TRE = E^{-1} [a + bF^n + cF + dFH + e(FH)^n + fF^{0.5}]$$

where:

$$n = 0.88$$

$$TRE = \text{Total resource effectiveness index.}$$

$$F = \text{Vent stream flowrate (scm/min), at a standard temperature of 20°C.}$$

$$E = \text{Hourly measured emissions in kg/hr.}$$

$$H = \text{Net heating value of vent stream (MJ/scm), where the net enthalpy per mole of offgas is based on combustion at 25°C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20°C, as in the definition of "Flow".}$$



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a, b, c, d,  
e and f =

Coefficients obtained by use of Appendix F.

- 3) For nonchlorinated process vent streams, if the net heating value, H, is greater than 3.6 MJ/scm, F shall be replaced by F' for purposes of calculating TRE. F' is computed as follows:

$$F' = FH / 3.6$$

where F and H are as defined in subsection (c)(2).

- 4) The actual numerical values used in the equation described in subsection (c)(2) shall be determined as follows:

- A) All reference methods and procedures for determining the flow, (F), hourly emissions, (E), and net heating, (H), value shall be in accordance with Appendix C.
- B) All coefficients described in subsection (c)(2) shall be in accordance with Appendix D.

## Section 218.526 Testing and Monitoring

- a) Upon reasonable request by the Agency, the owner or operator of an air oxidation process shall demonstrate compliance with this Subpart by use of the methods specified in Appendix C. This Section does not limit the USEPA's authority, under the Clean Air Act, to require demonstrations of compliance.
- b) A person planning to conduct a VOM emissions test to demonstrate compliance with this Subpart shall notify the Agency of that intent not less than 30 days before the planned initiation of the tests so that the Agency may observe the test.

## Section 218.527 Compliance Date

Each owner or operator of an emission source subject to 35 Ill. Adm. Code 215, Subpart V, as of December 31, 1987 shall have complied with the standards and limitations of 35 Ill. Adm. Code 215, Subpart V, by December 31, 1987.

SUBPART W: AGRICULTURE  
Section 218.541 Pesticide Exception

The provisions of Sections 218.301 and 218.302 shall not apply to the spraying or use of insecticides, herbicides or other pesticides.

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SUBPART X: CONSTRUCTION

## Section 218.561 Architectural Coatings

No person shall cause or allow the sale or use of any architectural coating containing more than 20 percent by volume of photo-chemically reactive material in containers having a capacity of more than one gallon.

## Section 218.562 Paving Operations

The provisions of Sections 218.301 and 218.302 shall not apply to the application of paving asphalt and pavement marking paint from sunrise to sunset.

## Section 218.563 Cutback Asphalt

- a) No person shall cause or allow the use or application of cutback asphalt for paving, resurfacing, reconditioning, repairing or otherwise maintaining a roadway unless:

- 1) The use or application of the cutback asphalt commences on or after October 1 of any year and such use or application is completed by April 30 of the following year; or
- 2) The cutback asphalt is a long-life stockpile material which remains in stock after April 30 of each year and as such it may be used until depleted for patching potholes and for other similar repair work; or
- 3) The cutback asphalt is to be used solely as an asphalt prime coat.
- b) Sources subject to this Section are not required to submit or obtain an Agency approved compliance plan or project completion schedule under 35 Ill. Adm. Code 201, Subpart H.

## SUBPART Y: GASOLINE DISTRIBUTION

## Section 218.581 Bulk Gasoline Plants

- a) Subject to Subsection (e), no person may cause or allow the transfer of gasoline from a delivery vessel into a stationary storage tank located at a bulk gasoline plant unless:
- 1) The delivery vessel and the stationary storage tank are each equipped with a vapor collection system that meets the requirements of subsection (d)(4),
- 2) Each vapor collection system is operating,



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- 3) The delivery vessel displays the appropriate sticker pursuant to the requirements of Sections 218.584 (b) or (d).
- 4) The pressure relief valve(s) on the stationary storage tank and the delivery vessel are set to release at no less than 0.7 psi or the highest pressure allowed by state or local fire codes or the guidelines of the National Fire Prevention Association, and the guidelines of the National Fire Prevention Association, and
- 5) The stationary storage tank is equipped with a submerged loading pipe.
- b) Subject to subsection (f), no person may cause or allow the transfer of gasoline from a stationary storage tank located at a bulk gasoline plant into a delivery vessel unless:
  - 1) The requirements set forth in subsections (a)(1) through (a)(4) are met, and
  - 2) Equipment is available at the bulk gasoline plant to provide for the submerged filling of the delivery vessel or the delivery vessel is equipped for bottom loading.
- c) Subject to subsection (e), each owner of a stationary storage tank located at a bulk gasoline plant shall:
  - 1) Equip each stationary storage tank with a vapor control system that meets the requirements of subsection (a) or (b), whichever is applicable,
  - 2) Provide instructions to the operator of the bulk gasoline plant describing necessary maintenance operations and procedures for prompt notification of the owner in case of any malfunction of a vapor control system, and
  - 3) Repair, replace or modify any worn out or malfunctioning component or element of design.
- d) Subject to subsection (e), each operator of a bulk gasoline plant shall:
  - 1) Maintain and operate each vapor control system in accordance with the owner's instructions,
  - 2) Promptly notify the owner of any scheduled maintenance or malfunction requiring replacement or repair of a major component of a vapor control system, and
  - 3) Maintain gauges, meters or other specified testing devices in proper working order.

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- 4) Operate the bulk plant vapor collection system and gasoline loading equipment in a manner that prevents:
  - A) Gauge pressure from exceeding 45.7 cm (18 in.) of water and vacuum from exceeding 15.2 cm (6 in.) of water, as measured as close as possible to the vapor hose connection, and
  - B) A reading equal to or greater than 100 percent of the lower explosive limit (LEL measured as propane) when tested in accordance with the procedure described in "Control of Volatile Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection Systems", Appendix B, EPA 450/2-78-051, (incorporated by reference in Section 218.112), and
  - C) Avoidable leaks of liquid during loading or unloading operations.
- 5) Provide a pressure tap or equivalent on the bulk plant vapor collection system in order to allow the determination of compliance with subsection (d)(4)(A), and
- 6) Within 15 business days after discovery of any leak by the owner, the operator, the Agency or the USEPA, repair and retest a vapor collection system which exceeds the limits of subsection (d)(4)(A) or (B).
- e) The requirements of subsections (a), (c) and (d) shall not apply to:
  - 1) Any stationary storage tank with a capacity of less than 2,177 l (575 gal), or
  - 2) Any bulk gasoline plant whose daily gasoline throughput is less than 15,140 l (4,000 gal/day) on a thirty-day rolling average.
- f) The requirements of subsection (b) shall apply only to bulk gasoline plants whose daily gasoline throughput is greater than or equal to 15,140 l (4,000 gal/day) on a thirty-day rolling average.
- g) Any bulk gasoline plant which is ever subject to subsections (a), (b), (c), or (d) shall always be subject to these paragraphs.

## Section 218.582 Bulk Gasoline Terminals

- a) No person shall cause or allow the transfer of gasoline into any delivery vessel from any bulk gasoline terminal unless:
  - 1) The bulk gasoline terminal is equipped with a vapor control



system that limits emission of VOM to 80 mg/l (0.00067 lbs/gal) of gasoline loaded;

- 2) The vapor control system is operating and all vapors displaced in the loading of gasoline to the delivery vessel are vented only to the vapor control system;
- 3) There is no liquid drainage from the loading device when it is not in use;
- 4) All loading and vapor return lines are equipped with fittings which are vapor tight; and
- 5) The delivery vessel displays the appropriate sticker pursuant to the requirements of Section 218.584(b) or (d); or, if the terminal is driver-loaded, the terminal owner or operator shall be deemed to be in compliance with this Section when terminal access authorization is limited to those owners and/or operators of delivery vessels who have provided a current certification as required by Section 218.584(c)(3).

b) Bulk gasoline terminals were required to take certain actions to achieve compliance which are summarized in 35 Ill. Adm. Code 215, Appendix C.

c) The operator of a bulk gasoline terminal shall:

- 1) Operate the terminal vapor collection system and gasoline loading equipment in a manner that prevents:
    - A) Gauge pressure from exceeding 18 inches of water and vacuum from exceeding 6 inches of water as measured as close as possible to the vapor hose connection; and
    - B) A reading equal to or greater than 100 percent of the lower explosive limit (LEL measured as propane) when tested in accordance with the procedure described in EPA 450/2-78-051 Appendix B incorporated by reference in Section 218.112; and
  - C) Avoidable leaks of liquid during loading or unloading operations.
- 2) Provide a pressure tap or equivalent on the terminal vapor collection system in order to allow the determination of compliance with Section 218.582(d)(1)(A); and
  - 3) Within 15 business days after discovery of the leak by the owner, operator, or the Agency repair and retest a vapor

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collection system which exceeds the limits of subsection (c)(1)(A) or (B).

Section 218.583 Gasoline Dispensing Facilities

- a) Subject to subsection (b), no person shall cause or allow the transfer of gasoline from any delivery vessel into any stationary storage tank at a gasoline dispensing facility unless:
  - 1) The tank is equipped with a submerged loading pipe; and
  - 2) The vapors displaced from the storage tank during filling are processed by a vapor control system that includes one or more of the following:

- A) A vapor collection system that meets the requirements of subsection (d)(4); or
- B) A refrigeration-condensation system or any other system approved by the Agency and approved by the USEPA as a SIP revision, that recovers at least 90 percent by weight of all vaporized organic material from the equipment being controlled; and
- C) The delivery vessel displays the appropriate sticker pursuant to the requirements of Section 218.584(b) or (d).

b) The requirements of subsection (a)(2) shall not apply to transfers of gasoline to a stationary storage tank at a gasoline dispensing facility if:

- 1) The tank is equipped with a floating roof, or other system of equal or better emission control approved by the Agency and approved by the USEPA as a SIP revision;
- 2) The tank has a capacity of less than 2000 gallons and was in place and operating before January 1, 1979; or
- 3) The tank has a capacity of less than 575 gallons.

c) Subject to subsection (b), each owner of a gasoline dispensing facility shall:

- 1) Install all control systems and make all process modifications required by subsection (a);
- 2) Provide instructions to the operator of the gasoline dispensing facility describing necessary maintenance operations and



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procedures for prompt notification of the owner in case of any malfunction of a vapor control system; and

- 3) Repair, replace or modify any worn out or malfunctioning component or element of design.
- d) Subject to subsection (b), each operator of a gasoline dispensing facility shall:
  - 1) Maintain and operate each vapor control system in accordance with the owner's instructions;
  - 2) Promptly notify the owner of any scheduled maintenance or malfunction requiring replacement or repair of a major component of a vapor control system;
  - 3) Maintain gauges, meters or other specified testing devices in proper working order;
  - 4) Operate the vapor collection system and delivery vessel unloading points in a manner that prevents:
    - A) A reading equal to or greater than 100 percent of the lower explosive limit (LEL measured as propane) when tested in accordance with the procedure described in EPA 450/2-78-051 Appendix B, and
    - B) Avoidable leaks of liquid during the filling of storage tanks; and
  - 5) Within 15 business days after discovery of the leak by the owner, operator, or the Agency, repair and retest a vapor collection system which exceeds the limits of subsection (d)(4)(A).
- e) Gasoline dispensing facilities were required to take certain actions to achieve compliance which are summarized in 35 Ill. Adm. Code 215, Appendix C.

## Section 218.584 Gasoline Delivery Vessels

- a) Any delivery vessel equipped for vapor control by use of vapor collection equipment:

- 1) Shall have a vapor space connection that is equipped with fittings which are vapor tight;
- 2) Shall have its hatches closed at all times during loading or

unloading operations, unless a top loading vapor recovery system is used;

- 3) Shall not internally exceed a gauge pressure of 18 inches of water or a vacuum of 6 inches of water;
- 4) Shall be designed and maintained to be vapor tight at all times during normal operations;
- 5) Shall not be refilled in Illinois at other than:
  - A) A bulk gasoline terminal that complies with the requirements of Section 218.582 or
  - B) A bulk gasoline plant that complies with the requirements of Section 218.581(b).
- 6) Shall be tested annually in accordance with Method 27, 40 CFR 60, Appendix A, incorporated by reference in Section 218.105. Each vessel must be repaired and retested within 15 business days after discovery of the leak by the owner, operator, or the Agency, when it fails to sustain:
  - A) A pressure drop of no more than three inches of water in five minutes; and
  - B) A vacuum drop of no more than three inches of water in five minutes.
- b) Any delivery vessel meeting the requirements of subsection (a) shall have a sticker affixed to the tank adjacent to the tank manufacturer's data plate which contains the tester's name, the tank identification number and the date of the test. The sticker shall be in a form prescribed by the Agency, and, for those delivery vessels subject to 35 Ill. Adm. Code 215 as of December 31, 1987, shall have been displayed no later than December 31, 1987.
- c) The owner or operator of a delivery vessel shall:
  - 1) Maintain copies of any test required under subsection (a)(6) for a period of 3 years;
  - 2) Provide copies of these tests to the Agency upon request; and
  - 3) Provide annual test result certification to bulk gasoline plants and terminals where the delivery vessel is loaded.
- d) Any delivery vessel which has undergone and passed a test in another state which has a USEPA-approved leak testing and certification



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program will satisfy the requirements of subsection (a). Delivery vessels must display a sticker, decal or stencil approved by the state where tested or comply with the requirements of subsection (b). All such stickers, decals or stencils shall have been displayed no later than December 31, 1987, for delivery vessels subject to 35 Ill. Adm. Code 215 as of December 31, 1987.

## Section 218.585 Gasoline Volatility Standards

- a) No person shall sell, offer for sale, dispense, supply, offer for supply, or transport for use in Illinois gasoline whose Reid vapor pressure exceeds the applicable limitations set forth in subsections (b) and (c) during the regulatory control periods, which shall be July 1 to August 31 for retail outlets, wholesale purchaser-consumer facilities, and all other facilities.
- b) The Reid vapor pressure of gasoline, a measure of its volatility, shall not exceed 9.5 psi (65.5 kPa) during the regulatory control period in 1990 and each year thereafter.
- c) The Reid vapor pressure of ethanol blend gasolines shall not exceed the limitations for gasoline set forth in subsection (b) by more than 1.0 psi (6.9 kPa). Notwithstanding this limitation, blenders of ethanol blend gasolines whose Reid vapor pressure is less than 1.0 psi above the base stock gasoline immediately after blending with ethanol are prohibited from adding butane or any product that will increase the Reid vapor pressure of the blended gasoline.
- d) All sampling of gasoline required pursuant to the provisions of this Section shall be conducted by one or more of the following approved methods or procedures which are incorporated by reference in Section 215.105.
  - 1) For manual sampling, ASTM D4057;
  - 2) For automatic sampling, ASTM D4177;
  - 3) Sampling procedures for Fuel Volatility, 40 CFR 80 Appendix D.
- e) The Reid vapor pressure of gasoline shall be measured in accordance with either test method ASTM D323 or a modification of ASTM D323 known as the "dry method" as set forth in 40 CFR 80, Appendix E, incorporated by reference in 35 Ill. Adm. Code 215.105. For gasoline - oxygenate blends which contain water-extractable oxygenates, the Reid vapor pressure shall be measured using the dry method test.
- f) The ethanol content of ethanol blend gasolines shall be determined by use of one of the approved testing methodologies specified in 40 CFR

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80, Appendix F, incorporated by reference in 35 Ill. Adm. Code 215.105.

- g) Any alternate to the sampling or testing methods or procedures contained in subsections (d), (e), and (f) must be approved by the Agency, which shall consider data comparing the performance of the proposed alternative to the performance of one or more approved test methods or procedures. Such data shall accompany any request for Agency approval of any alternate test procedure. If the Agency determines that such data demonstrates that the proposed alternative will achieve results equivalent to the approved test methods or procedures, the Agency shall approve the proposed alternative.
- h) Each refiner or supplier that distributes gasoline or ethanol blends shall:
  - 1) During the regulatory control period, state that the Reid vapor pressure of all gasoline or ethanol blends leaving the refinery or distribution facility for use in Illinois complies with the Reid vapor pressure limitations set forth in 35 Ill. Adm. Code 215.585(b) and (c). Any facility receiving this gasoline shall be provided with a copy of an invoice, bill of lading, or other documentation used in normal business practice stating that the Reid vapor pressure of the gasoline complies with the State Reid vapor pressure standard.
  - 2) Maintain records for a period of one year on the Reid vapor pressure, quantity shipped and date of delivery of any gasoline or ethanol blends leaving the refinery or distribution facility for use in Illinois. The Agency shall be provided with copies of such records if requested.

## SUBPART Z: DRY CLEANERS

## Section 218.601 Perchloroethylene Dry Cleaners

The owner or operator of a dry cleaning facility which uses perchloroethylene shall:

- a) Vent the entire dryer exhaust through a properly designed and functioning carbon adsorption system or equally effective control device; and
- b) Emit no more than 100 ppmv of VOM from the dryer control device before dilution, or achieve a 90 percent average reduction before dilution; and
- c) Immediately repair all components found to be leaking liquid VOM; and



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- d) Cook or treat all diatomaceous earth filters so that the residue contains 25 kg (55 lb) or less of VOM per 100 kg (220 lb) of wet waste material; and
- e) Reduce the VOM from all solvent stills to 60 kg (132 lb) or less per 100 kg (220 lb) of wet waste material; and
- f) Drain all filtration cartridges in the filter housing or other sealed container for at least 24 hours before discarding the cartridges; and
- g) Dry all drained filtration cartridges in equipment connected to an emission reduction system or in a manner that will eliminate emission of VOM to the atmosphere.

## Section 218.602 Exemptions

The provisions of Section 218.601 are not applicable to perchloroethylene dry cleaning operations which are coin-operated or to dry cleaning facilities consuming less than 30 gal per month (360 gal per year) of perchloroethylene.

## Section 218.603 Leaks

The presence of leaks shall be determined for purposes of Section 218.601(c) by a visual inspection of the following: hose connections, unions, couplings and valves; machine door gaskets and seatings; filter head gasket and seating; pumps; base tanks and storage containers; water separators; filter sludge recovery; distillation unit; diverter valves; saturated lint from lint baskets; and cartridge filters.

## Section 218.604 Compliance Dates

Every owner or operator of an emission source previously subject to 35 Ill. Adm. Code 215, Subpart 2, shall have complied with its standards and limitations in accordance with the applicable dates set forth in 35 Ill. Adm. Code 215.604.

## Section 218.605 Compliance Plan

- a) The owner or operator of an emission source subject to this Subpart shall have submitted to the Agency a compliance plan, pursuant to 35 Ill. Adm. Code 201, Subpart H, including a project completion schedule where applicable, no later than, for Section 218.601(a) and (b), April 21, 1983.
- b) Unless the submitted compliance plan or schedule was disapproved by the Agency, the owner or operator of a facility or emission source may operate the emission source according to the plan and schedule as submitted.

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- c) The plan and schedule shall meet the requirements of 35 Ill. Adm. Code 201, Subpart H, including specific interim dates as required in 35 Ill. Adm. Code 201.242.

## Section 218.606 Exception to Compliance Plan

Coin-operated dry cleaning operations and dry cleaning facilities consuming less than 30 gal per month (360 gal per year) of perchloroethylene are not required to submit or obtain an Agency approved compliance plan or project completion schedule.

## Section 218.607 Standards for Petroleum Solvent Dry Cleaners

- a) The owner or operator of a petroleum solvent dry cleaning dryer shall either:
  - 1) Limit emissions of VOM to the atmosphere to an average of 3.5 kilograms of VOM per 100 kilograms dry weight of articles dry cleaned, or
  - 2) Install and operate a solvent recovery dryer in a manner such that the dryer remains closed and the recovery phase continues until a final solvent flow rate of 50 milliliters per minute is attained.
- b) The owner or operator of a petroleum solvent filtration system shall either:
  - 1) Reduce the VOM content in all filtration wastes to 1.0 kilogram or less per 100 kilograms dry weight of articles dry cleaned, before disposal, and exposure to the atmosphere, or
  - 2) Install and operate a cartridge filtration system, and drain the filter cartridges in their sealed housings for 8 hours or more before their removal.

## Section 218.608 Operating Practices for Petroleum Solvent Dry Cleaners

In order to minimize fugitive solvent emissions, the owner or operator of a petroleum solvent dry cleaning facility shall employ good housekeeping practices including the following:

- a) General Housekeeping Requirements
  - 1) Equipment containing solvent (washers, dryers, extractors and filters) shall remain closed at all times except during load transfer and maintenance. Lint filter and button trap covers shall remain closed except when solvent-laden material is being removed.



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- 2) Cans, buckets, barrels and other containers of solvent or of solvent-laden material shall be covered except when in use.
- 3) Solvent-laden material shall be exposed to the atmosphere only for the minimum time necessary for load transfer.
- b) Installation and operation of equipment:
  - 1) All cartridge filters shall be enclosed and operated in accordance with the procedures and specifications recommended by the manufacturer for the cartridge filter. After installation, the cartridges shall be inspected, monitored and maintained in accordance with the manufacturer's recommendations; and
  - 2) Vents on containers for new solvent and for solvent-containing waste shall be constructed and maintained so as to minimize solvent vapor emissions. Criteria for the minimization of solvent vapor emissions include the elimination of solvent buckets and barrels standing open to the atmosphere, and the repair of gaskets and seals that expose solvent-rich environments to the atmosphere, to be determined through visual inspection.

## Section 218.609 Program for Inspection and Repair of Leaks

- a) The owner or operator of a petroleum solvent dry cleaning facility shall conduct the following visual inspections on a weekly basis:
  - 1) Washers, dryers, solvent filters, settling tanks, vacuum stills and containers and conveyors of petroleum solvent shall be inspected for visible leaks of solvent liquid.
  - 2) Pipes, hoses and fittings shall be inspected for active dripping or dampness.
  - 3) Pumps and filters shall be inspected for leaks around seals and access covers.
  - 4) Gaskets and seals shall be inspected for wear and defects.
- b) Leaks of petroleum solvent liquid and vapors shall be repaired within three working days of detection, unless necessary replacement parts are not on site.
  - 1) If necessary, repair parts shall be ordered within three working days of detection of the leak.
  - 2) The leak shall be repaired within three days of delivery of necessary parts.

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## Section 218.610 Testing and Monitoring

- a) Compliance with Sections 218.607(b)(2), 215.608 and 215.609 shall be determined by visual inspection; and
- b) Compliance with Sections 218.607(a)(2) and (b)(1) shall be determined by methods described in EPA-450/3-82-009 (1982) incorporated by reference in Section 218.112.
- c) If a control device is used to comply with Section 218.607(a)(1), then compliance shall be determined using 40 CFR 60 Appendix A, Method 25 (1984) incorporated by reference in Section 218.112.

## Section 218.611 Exemption for Petroleum Solvent Dry Cleaners

The provisions of Sections 218.607 through 218.610 shall not apply to petroleum solvent dry cleaning facilities whose emissions of VOM do not exceed 91 megagrams (100 tons) per year in the absence of pollution control equipment or whose emissions of VOM, as limited by the operating permit, will not exceed 91 megagrams (100 tons) per year in the absence of pollution control equipment.

## Section 218.612 Compliance Dates

Owners and operators of emission sources subject to 35 Ill. Adm. Code 215.607 through 215.609 as of December 31, 1987 shall have complied with the requirements set forth therein no later than December 31, 1987.

## Section 218.613 Compliance Plan

- a) The owner or operator of an emission source subject to 35 Ill. Adm. Code 215.610(a) as of May 31, 1987 shall have submitted to the Agency a compliance plan, including a project completion schedule where applicable, no later than May 31, 1987.
- b) The plan and schedule shall meet the requirements of 35 Ill. Adm. Code 201.

## SUBPART AA: PAINT AND INK MANUFACTURING

## Section 218.620 Applicability

- a) This subpart shall apply to all paint and ink manufacturing plants which:

- 1) Include process emission sources not subject to Subparts B, E, F (excluding Section 218.204(1)), H (excluding Section 218.405), Q, R, S, V, X, Y or Z of this Part; and which as a group both:



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- A) have maximum theoretical emissions of 91 Mg (100 tons) or more per calendar year of VOM if no air pollution control equipment were used, and
- B) are not limited to less than 91 Mg (100 tons) of VOM emissions per calendar year in the absence of air pollution control equipment, through production or capacity limitations contained in a federally enforceable construction permit or a SIP revision, or
- 2) Produce more than 7,570,820 l (2,000,000 gal) per calendar year of paint or ink formulations, which contain less than 10 percent (by weight) water, and ink formulations not containing as the primary solvents water, Magie oil or glycol.
- b) For the purposes of this Subpart, uncontrolled VOM emissions are the emissions of VOM which would result if no air pollution control equipment were used.

## Section 218.621 Exemption for Waterbase Material and Heatset-Offset Ink

The requirements of Sections 218.624 and 218.625 and Section 218.628(a) shall not apply to equipment while it is being used to produce either:

- a) paint or ink formulations which contain 10 percent or more (by weight) water, or
- b) inks containing Magie oil and glycol as the primary solvent.

## Section 218.623 Permit Conditions

No person shall violate any condition in a permit when the condition results in exclusion of the plant or an emission source from this Subpart.

## Section 218.624 Open-top Mills, Tanks, Vats or Vessels

No person shall operate an open-top mill, tank, vat or vessel with a volume of more than 45 l (12 gal) for the production of paint or ink unless:

- a) The mill, tank, vat or vessel is equipped with a cover which completely covers the mill, tank, vat or vessel opening except for an opening no larger than necessary to allow for safe clearance for a mixer shaft. Such cover shall extend at least 1.27 cm (0.5 in) beyond the outer rim of the opening or be attached to the rim.
- b) The cover remains closed except when production, sampling, maintenance or inspection procedures require access.

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- c) The cover is maintained in good condition such that, when in place, it maintains contact with the rim of the opening for at least 90 percent of the circumference of the rim.

## Section 218.625 Grinding Mills

- a) No person shall operate a grinding mill for the production of paint or ink which is not maintained in accordance with the manufacturer's specifications.
- b) No person shall operate a grinding mill fabricated or modified after the effective date of this Subpart which is not equipped with fully enclosed screens.
- c) The manufacturer's specifications shall be kept on file at the plant by the owner or operator of the grinding mill and be made available to any person upon verbal or written request during business hours.

## Section 218.626 Storage Tanks

- a) The owner or operator shall equip tanks storing VOL with a vapor pressure greater than 10 kPa (1.5 psi) at 20°C (68°F) with pressure/vacuum conservation vents set as a minimum at  $\pm 0.2$  kPa (0.029 psi). These controls shall be operated at all times. An alternative air pollution control system may be used if it results in a greater emission reduction than these controls. Any alternative control system can be allowed only if approved by the Agency and approved by the USEPA as a SIP revision.

- b) Stationary VOL storage containers with a capacity greater than 946 l (250 gal) shall be equipped with a submerged-fill pipe or bottom fill. These controls shall be operated at all times. An alternative control system can be allowed only if approved by the Agency and approved by the USEPA as a SIP revision.

## Section 218.628 Leaks

The owner or operator of a paint or ink manufacturing plant shall, for the purpose of detecting leaks, conduct an equipment monitoring program as set forth below:

- a) Each pump shall be checked by visual inspection each calendar week for indications of leaks, that is, liquids dripping from the pump seal. If there are indications of liquids dripping from the pump seal, the pump shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected.
- b) Any pump, valve, pressure relief valve, sampling connection,



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open-ended valve and flange or connector containing a fluid which is at least 10 percent VOM by weight which appears to be leaking on the basis of sight, smell or sound shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected.

- c) A weather proof, readily visible tag, in bright colors such as red or yellow, bearing an identification number and the date on which the leak was detected shall be attached to leaking equipment. The tag may be removed upon repair, that is, when the equipment is adjusted or otherwise altered to allow operation without leaking.
- d) When a leak is detected, the owner or operator shall record the date of detection and repair and the record shall be retained at the plant for at least two years from the date of each detection or each repair attempt. The record shall be made available to any person upon verbal or written request during business hours.

## Section 218.630 Clean Up

- a) No person shall clean paint or ink manufacturing equipment with organic solvent unless the equipment being cleaned is completely covered or enclosed except for an opening no larger than necessary to allow safe clearance for proper operation of the cleaning equipment, considering the method and materials being used.
- b) No person shall store organic wash solvent in other than closed containers, unless closed containers are demonstrated to be a safety hazard, or dispose of organic wash solvent in a manner such that more than 20 percent by weight is allowed to evaporate into the atmosphere.

## Section 218.636 Compliance Schedule

Every owner or operator of an emission source subject to the control requirements of this Subpart shall comply with the requirements thereof on and after a date consistent with Section 218.106.

## Section 218.637 Recordkeeping and Reporting

- a) Upon request by the Agency, the owner or operator of an emission source which claims to be exempt from the requirements of this Subpart shall submit records to the Agency within 30 calendar days from the date of the request which document that the emission source is in fact exempt from this Subpart. These records shall include (but are not limited to) the percent water (by weight) in the paint or ink being produced and the quantity of Magie oil, glycol and other solvents in the ink being produced.

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- b) Every owner or operator of an emission source which is subject to the requirements of this Subpart shall maintain all records necessary to demonstrate compliance with those requirements at the facility for three years.

## SUBPART BB: POLYSTYRENE PLANTS

## Section 218.875 Applicability of Subpart BB

The provisions of this Subpart shall apply to polystyrene plants:

- a) Which use continuous processes to manufacture polystyrene - polybutadiene co-polymer; and
- b) Which fall within Standard Industrial Classification Group No. 282, Industry No. 2821, except that the manufacture of polystyrene resins need not be the primary manufacturing process at the plant.

## Section 218.877 Emissions Limitation at Polystyrene Plants

No person shall cause or allow the emissions of VOM from the material recovery section to exceed 0.12 kg of Volatile Organic Material per 1000 kg of polystyrene resin produced.

## Section 218.879 Compliance Date

Every owner and operator of an emission source subject to 35 Ill. Adm. Code 215, Subpart BB, as of December 31, 1987, shall have complied with its standards and limitations by December 31, 1987.

## Section 218.881 Compliance Plan

- a) The owner or operator of an emission source formerly subject to the requirements of 35 Ill. Adm. Code 215 Subpart BB shall have submitted to the Agency a compliance plan in accordance with 35 Ill. Adm. Code 201, Subpart H, including a project completion schedule on or before December 1, 1987.

- b) Unless the submitted compliance plan or schedule was disapproved by the Agency, the owner or operator of a facility or emission source subject to this Subpart may operate the emission source according to the plan and schedule as submitted.

- c) The plan and schedule shall meet the requirements of 35 Ill. Adm. Code 201, Subpart H and Section 218.883.

## Section 218.883 Special Requirements for Compliance Plan



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For sources subject to this Subpart, an approvable compliance plan shall include:

- a) A description of each process which is subject to an emissions limitation;
- b) Quantification of the emissions from each process;
- c) A description of the procedures and methods used to determine the emissions of VOM;
- d) A description of the methods which will be used to demonstrate compliance with the allowable plantwide emission limitation (Section 215.877), including a method of inventory, recordkeeping and emission calculation or measurement.

## Section 218.886 Testing and Monitoring

- a) Upon a reasonable request by the Agency, the owner or operator of a polystyrene plant subject to this Subpart shall at his own expense demonstrate compliance by use of the following method: 40 CFR 60, Appendix A, Method 25 - Determination of Total Gaseous Non-Methane Organic Emissions as Carbon (1984), incorporated by reference in Section 218.112.

- b) A person planning to conduct a VOM emissions test to demonstrate compliance with this Subpart shall notify the Agency of that intent not less than 30 days before the planned initiation of the tests so the Agency may observe the test.

## SUBPART PP: MISCELLANEOUS FABRICATED PRODUCT MANUFACTURING PROCESSES

## Section 218.920 Applicability

- a) The requirements of this Subpart shall apply to a plant's miscellaneous fabricated product manufacturing process emission sources which are not included within any of the source categories specified in Subparts B, E, F, H, Q, R, S, V, X, Y or Z if the plant is subject to this Subpart. A plant is subject to this Subpart if it contains process emission sources, not regulated by Subparts B, E, F (excluding Section 218.204(a)), H (excluding Section 218.405), Q, R, S, V, X, Y or Z of this Part; which as a group both:

- 1) have maximum theoretical emissions of 91 Mg (100 tons) or more per calendar year of VOM if no air pollution control equipment were used, and
- 2) are not limited to less than 91 Mg (100 tons) of VOM emissions per calendar year in the absence of air pollution control

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equipment, through production or capacity limitations contained in a federally enforceable construction permit or a SIP revision.

- b) If a plant ceases to fulfill the criteria of subsection (a), the requirements of this Subpart shall continue to apply to a miscellaneous fabricated products manufacturing process emission source which was ever subject to the control requirements of Section 218.926.
- c) No limits under this Subpart shall apply to emission sources with emissions of VOM to the atmosphere less than or equal to 0.91 Mg (1.0 ton) per calendar year if the total emissions from such sources not complying with Section 218.926 does not exceed 4.5 Mg (5.0 tons) per calendar year.
- d) For the purposes of this Subpart, an emission source shall be considered regulated by a Subpart if it is subject to the limits of that Subpart. An emission source is not considered regulated by a Subpart if its emissions are below the applicability cutoff level or if the source is covered by an exemption.
- e) For the purposes of this Subpart, uncontrolled VOM emissions are the emissions of VOM which would result if no air pollution control equipment were used.

## Section 218.923 Permit Conditions

No person shall violate any condition in a permit when the condition results in exclusion of the plant or an emission source from this Subpart.

## Section 218.926 Control Requirements

Every owner or operator of an emission source subject to this Subpart shall comply with the requirements of subsection (a), (b) or (c):

- a) Emission capture and control techniques which achieve an overall reduction in uncontrolled VOM emissions of at least 81 percent, or
- b) For coating lines, the daily-weighted average VOM content shall not exceed 0.42 kg VOM/l (3.5 lbs VOM/gal) of coating as applied (minus water and any compounds which are specifically exempted from the definition of VOM) during any day. Owners and operators complying with this Section are not required to comply with Section 218.301, or
- c) An alternative control plan which has been approved by the Agency and approved by the USEPA as a SIP revision.

## Section 218.927 Compliance Schedule



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Every owner or operator of an emission source subject to the control requirements of this Subpart shall comply with the requirements thereof on and after a date consistent with Section 218.106.

## Section 218.928 Testing

Any owner or operator of a VOM emission source which is subject to this Subpart shall demonstrate compliance with Section 218.926 by using the applicable test methods and procedures specified in Section 218.105.

## SUBPART QQ: MISCELLANEOUS FORMULATION MANUFACTURING PROCESSES

## Section 218.940 Applicability

- a) The requirements of this Subpart shall apply to a plant's miscellaneous formulation manufacturing process emission sources, which are not included within any of the source categories specified in Subparts B, E, F, H, Q, R, S, V, X, Y or Z of this Part if the plant is subject to this Subpart. A plant is subject to this Subpart if it contains process emission sources, not regulated by Subparts B, E, F (excluding Section 218.204(1)), H (excluding Section 218.405), Q, R, S, V, X, Y or Z of this Part; which as a group both:

- 1) have maximum theoretical emissions of 91 Mg (100 tons) or more per calendar year of VOM if no air pollution control equipment were used, and
- 2) are not limited to less than 91 Mg (100 tons) of VOM emissions per calendar year in the absence of air pollution control equipment, through production or capacity limitations contained in a federally enforceable construction permit or a SIP or FIP revision.

- b) If a plant ceases to fulfill the criteria of subsection (a), the requirements of this Subpart shall continue to apply to a miscellaneous formulation manufacturing process emission source which was ever subject to the control requirements of Section 218.946.

- c) No limits under this Subpart shall apply to emission sources with emissions of VOM to the atmosphere less than or equal to 2.3 Mg (2.5 tons) per calendar year if the total emissions from such sources not complying with this Section does not exceed 4.5 Mg (5.0 tons) per calendar year.

- d) For the purposes of this Subpart, an emission source shall be considered regulated by a Subpart if it is subject to the limits of that Subpart. An emission source is not considered regulated by a Subpart if its emissions are below the applicability cutoff level or if the source is covered by an exemption.

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- e) For the purposes of this Subpart, uncontrolled VOM emissions are the emissions of VOM which would result if no air pollution control equipment were used.

## Section 218.943 Permit Conditions

No person shall violate any condition in a permit when the condition results in exclusion of the plant or an emission source from this Subpart.

## Section 218.946 Control Requirements

Every owner or operator of an emission source subject to this Subpart shall comply with the requirements of subsection (a) or (b) below.

- a) Emission capture and control techniques which achieve an overall reduction in uncontrolled VOM emissions of at least 81 percent, or
- b) An alternative control plan which has been approved by the Agency and approved by the USEPA as a SIP revision.

## Section 218.947 Compliance Schedule

Every owner or operator of an emission source subject to the control requirements of this Subpart shall comply with the requirements thereof on and after a date consistent with Section 218.106.

## Section 218.948 Testing

Any owner or operator of a VOM emission source which is subject to this Subpart shall demonstrate compliance with Section 218.946 by using the applicable test methods and procedures specified in Section 218.105.

## SUBPART RR: MISCELLANEOUS ORGANIC CHEMICAL MANUFACTURING PROCESSES

## Section 218.960 Applicability

- a) The requirements of this Subpart shall apply to a plant's miscellaneous organic chemical manufacturing process emission sources which are not included within any of the source categories specified in Subparts B, E, F, H, Q, R, S, V, X, Y or Z of this Part, if the plant is subject to this Subpart. A plant is subject to this Subpart if it contains process emission sources, not regulated by Subparts B, E, F (excluding Section 218.204(1)), H (excluding Section 218.405), Q, R, S, V, X, Y or Z of this Part; which as a group both:

- 1) have maximum theoretical emissions of 91 Mg (100 tons) or more per calendar year of VOM if no air pollution control equipment were used, and



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- 2) are not limited to less than 91 Mg (100 tons) of VOM emissions per calendar year in the absence of air pollution control equipment, through production or capacity limitations contained in a federally enforceable construction permit or a SIP revision.
- b) If a plant ceases to fulfill the criteria of Subsection (a), the requirements of this Subpart shall continue to apply to a miscellaneous organic chemical manufacturing process emission source which was ever subject to the control requirements of Section 218.966.
- c) No limits under this Subpart shall apply to emission sources with emissions of VOM to the atmosphere less than or equal to 0.91 Mg (1.0 ton) per calendar year if the total emissions from such sources not complying with Section 218.966 does not exceed 4.5 Mg (5.0 tons) per calendar year.
- d) For the purposes of this Subpart, an emission source shall be considered regulated by a Subpart if it is subject to the limits of that Subpart. An emission source is not considered regulated by a Subpart if its emissions are below the applicability cutoff level or if the source is covered by an exemption.
- e) For the purposes of this Subpart, uncontrolled VOM emissions are the emissions of VOM which would result if no air pollution control equipment were used.

## Section 218.963 Permit Conditions

No person shall violate any condition in a permit when the condition results in exclusion of the plant or an emission source from this Subpart.

## Section 218.966 Control Requirements

Every owner or operator of an emission source subject to this Subpart shall comply with the requirements of subsection (a) or (b) below.

- a) Emission capture and control techniques which achieve an overall reduction in uncontrolled VOM emissions of at least 81 percent, or
- b) An alternative control plan which has been approved by the Agency and approved by the USEPA as a SIP revision.

## Section 218.967 Compliance Schedule

Every owner or operator of an emission source subject to the control requirements of this Subpart shall comply with the requirements of this Subpart on and after a date consistent with Section 218.106.

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## Section 218.968 Testing

Any owner or operator of a VOM emission source which is subject to this Subpart shall demonstrate compliance with Section 218.966 by using the applicable test methods and procedures specified in Section 218.105.

## SUBPART TT: OTHER EMISSION SOURCES

## Section 218.980 Applicability

- a) The requirements of this Subpart shall apply to a plant's VOM emission sources, which are not included within any of the source categories specified in Subparts B, E, F, H, Q, R, S, V, X, Y, Z, AA, PP, QQ, or RR of this Part, if the plant is subject to this Subpart. A plant is subject to this Subpart if it contains process emission sources, not regulated by Subparts B, E, F (excluding Section 218.204(7)), H (excluding Section 218.405), Q, R, S, V, X, Y or Z of this Part, which as a group both:
  - 1) have maximum theoretical emissions of 91 Mg (100 tons) or more per calendar year of VOM if no air pollution control equipment were used, and
  - 2) are not limited to less than 91 Mg (100 tons) of VOM emissions per calendar year in the absence of air pollution control equipment, through production or capacity limitations contained in a federally enforceable construction permit or a SIP revision.
- b) If a plant ceases to fulfill the criteria of subsection (a), the requirements of this Subpart shall continue to apply to an emission source which was ever subject to the control requirements of Section 218.986.
- c) No limits under this Subpart shall apply to emission sources with emissions of VOM to the atmosphere less than or equal to 2.3 Mg (2.5 tons) per calendar year if the total emissions from such sources not complying with Section 218.986 does not exceed 4.5 Mg (5.0 tons) per calendar year.
- d) For the purposes of this Subpart, an emission source shall be considered regulated by a Subpart if it is subject to the limits of that Subpart. An emission source is not considered regulated by a Subpart if its emissions are below the applicability cutoff level or if the source is covered by an exemption.
- e) The control requirements in Subparts QQ, RR, SS and TT shall not apply to sewage treatment plants, vegetable oil processing plants, coke ovens (including by-product recovery plants), fuel combustion



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sources, bakeries, barge loading facilities, jet engine test cells, pharmaceutical manufacturing, production of polystyrene foam insulation board (including storage and extrusion of scrap where blowing agent is added to the polystyrene resin at the plant), production of polystyrene foam packaging (not including storage and extrusion of scrap where blowing agent is added to the polystyrene resin at the plant), and iron and steel production.

## Section 218.983 Permit Conditions

No person shall violate any condition in a permit when the condition results in exclusion of the plant or an emission source from this Subpart.

## Section 218.986 Control Requirements

Every owner or operator of an emission source subject to this Subpart shall comply with the requirements of subsection (a), (b) or (c) below.

- a) Emission capture and control equipment which achieve an overall reduction in uncontrolled VOM emissions of at least 81 percent, or
- b) For coating lines, the daily-weighted average VOM content shall not exceed 0.42 kg VOM/l (3.5 lbs VOM/gal) of coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied during any day. Owners and operators complying with this Section are not required to comply with Section 218.301, or
- c) An alternative control plan which has been approved by the Agency and approved by the USEPA as a SIP revision.

## Section 218.987 Compliance Schedule

Every owner or operator of an emissions source which is subject to this Subpart shall comply with the requirements of this Subpart on and after a date consistent with Section 218.106.

## Section 218.988 Testing

Any owner or operator of a VOM emission source which is subject to this Subpart shall demonstrate compliance with Section 218.986 by using the applicable test methods and procedures specified in Section 218.105.

## SUBPART UU: RECORDKEEPING AND REPORTING FOR NON-CTG SOURCES

## Section 218.990 Exempt Emission Sources

Upon request by the Agency, the owner or operator of an emission source which is exempt from the requirements of Subparts PP, QQ, RR, TT or Section

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218.208(b) shall submit records to the Agency within 30 calendar days from the date of the request that document that the emission source is exempt from those requirements.

## Section 218.991 Subject Emission Sources

- a) Any owner or operator of a VOM emission source which is subject to the requirements of Subpart PP, QQ, RR or TT and complying by the use of emission capture and control equipment shall comply with the following:
  - 1) By a date consistent with Section 218.106, or upon initial start-up of a new emission source, the owner or operator of the subject VOM emission source shall perform all tests and submit to the Agency the results of all tests and calculations necessary to demonstrate that the subject emission source will be in compliance on and after a date consistent with Section 218.106, or on and after the initial start-up date.
  - 2) On and after a date consistent with Section 218.106, or on and after the initial start-up date, the owner or operator of a subject VOM emission source shall collect and record all of the following information each day and maintain the information at the facility for a period of three years:
    - A) Control device monitoring data.
    - B) A log of operating time for the capture system, control device, monitoring equipment and the associated emission source.
    - C) A maintenance log for the capture system, control device and monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages.
- 3) On and after a date consistent with Section 218.106, the owner or operator of a subject VOM emission source shall notify the Agency in the following instances:
  - A) Any record showing a violation of the requirements of Subpart PP, QQ, RR or TT shall be reported by sending a copy of such record to the Agency within 30 days following the occurrence of the violation.
  - B) At least 30 calendar days before changing the method of compliance with Subpart PP or TT from the use of capture systems and control devices to the use of complying



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coatings, the owner or operator shall comply with all requirements of subsection (b)(1). Upon changing the method of compliance with Subpart PP or TT from the use of capture systems and control devices to the use of complying coatings, the owner or operator shall comply with all requirements of subsection (b).

- b) Any owner or operator of a coating line which is subject to the requirements of Subpart PP or TT and complying by means of the daily-weighted average VOM content limitation shall comply with the following:

- 1) By a date consistent with Section 218.106, or upon initial start-up of a coating line subject to Subpart PP or TT, the owner or operator of the subject coating line shall certify to the Agency that the coating line will be in compliance on and after a date consistent with Section 218.106, or on and after the initial start-up date. Such certification shall include:

- A) The name and identification number of each coating line which will comply by means of the daily-weighted average VOM content limitation.
- B) The name and identification number of each coating as applied on each coating line.
- C) The weight of VOM per volume and the volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line.
- D) The instrument or method by which the owner or operator will accurately measure or calculate the volume of each coating as applied each day on each coating line.
- E) The method by which the owner or operator will create and maintain records each day as required in subsection (b)(2).
- F) An example of the format in which the records required in subsection (b)(2) will be kept.

- 2) On and after a date consistent with Section 218.106, or on and after the initial start-up date, the owner or operator of a subject coating line shall collect and record all of the following information each day for each coating line and maintain the information at the facility for a period of three years:

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- A) The name and identification number of each coating as applied on each coating line.
- B) The weight of VOM per volume and the volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line.
- C) The daily-weighted average VOM content of all coatings as applied on each coating line as defined in Section 218.104.

- 3) On and after a date consistent with Section 218.106, the owner or operator of a subject coating line shall notify the Agency in the following instances:

- A) Any record showing violation of the requirements of Subpart PP or TT shall be reported by sending a copy of such record to the Agency and the USEPA within 30 days following the occurrence of the violation.
- B) At least 30 calendar days before changing the method of compliance with Subpart PP or TT from the use of complying coatings to the use capture systems and control devices, the owner or operator shall comply with all requirements of subsection (a)(1). Upon changing the method of compliance with Subpart PP or TT from the use of complying coatings to the use capture systems and control devices, the owner or operator shall comply with all requirements of subsection (a).
- c) Any owner or operator of a VOM emission source which is subject to the requirements of Subpart PP, QQ, RR or TT and complying by means of an alternative control plan which has been approved by the Agency and approved by the USEPA as a SIP revision shall comply with the recordkeeping and reporting requirements specified in the alternative control plan.



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APPENDIX A  
LIST OF CHEMICALS DEFINING SYNTHETIC  
ORGANIC CHEMICAL AND POLYMER  
MANUFACTURING

CAS No. <sup>a</sup>

Chemical

105-57-7 Acetal  
75-07-0 Acetaldehyde  
107-89-1 Acetalcohol  
60-35-5 Acetamide  
103-84-4 Acetanilide  
64-19-7 Acetic acid  
108-24-7 Acetic anhydride  
67-64-1 Acetone  
75-86-5 Acetone cyanohydrin  
75-05-8 Acetonitrile  
98-86-2 Acetophenone  
75-36-5 Acetyl chloride  
74-86-2 Acetylene  
107-02-8 Acrolein  
79-06-1 Acrylamide  
79-10-7 Acrylic acid & esters  
107-13-1 Acrylonitrile  
124-04-9 Adipic acid  
111-69-3 Adiponitrile  
(b)  
107-18-6 Alkyl naphthalenes  
107-05-1 Allyl alcohol  
1321-11-5 Allyl chloride  
111-41-1 Aminobenzoic acid  
123-30-8 Aminoethylethanamine  
628-63-7 p-aminophenol  
123-92-2 Amyl acetates  
71-41-0<sup>c</sup> Amyl alcohols  
110-58-7 Amyl amine  
543-59-9 Amyl chloride  
110-68-7<sup>c</sup> Amyl mercaptans  
1322-06-1 Amyl phenol  
62-53-3 Aniline  
142-04-1 Aniline hydrochloride  
29191-52-4 Anisidine  
100-66-3 Anisole  
118-92-3 Anthranilic acid  
84-65-1 Anthraquinone

100-52-7 Benzaldehyde  
55-21-0 Benzamide  
71-43-2 Benzene  
98-48-6 Benzenedisulfonic acid  
98-11-3 Benzenesulfonic acid  
134-81-6 Benzil  
76-93-7 Benzoic acid  
65-85-0 Benzoic acid  
119-53-9 Benzoin  
100-47-0 Benzonitrile  
119-61-9 Benzophenone  
98-07-7 Benzotrichloride  
98-88-4 Benzoyl chloride  
100-51-6 Benzyl alcohol  
100-46-9 Benzylamine  
120-51-4 Benzyl benzoate  
100-44-7 Benzyl chloride  
98-87-3 Benzyl dichloride  
92-52-4 Biphenyl  
80-05-7 Bisphenol A  
10-86-1 Bromobenzene  
27497-51-4 Bromonaphthalene  
106-99-0 Butadiene  
106-98-9 1-butene  
123-86-4 n-butyl acetate  
141-32-2 n-butyl acrylate  
71-36-3 n-butyl alcohol  
78-92-2 s-butyl alcohol  
75-65-0 t-butyl alcohol  
109-73-9 n-butylamine  
13952-84-6 s-butylamine  
75-64-9 t-butylamine  
98-73-7 p-tert-butyl benzoic acid  
107-88-0 1,3-butylene glycol  
123-72-8 n-butyraldehyde  
107-92-6 Butyric acid  
106-31-0 Butyric anhydride  
109-74-0 Butyronitrile  
105-60-2 Caprolactam  
75-1-50 Carbon disulfide  
558-13-4 Carbon tetrabromide  
55-23-5 Carbon tetrachloride  
9004-35-7 Cellulose acetate  
79-11-8 Chloroacetic acid  
108-42-9 m-chloroaniline  
95-51-2 o-chloroaniline



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106-47-8  
35913-09-8  
108-90-7  
118-91-2,  
535-80-8,  
74-11-3<sup>c</sup>  
2136-81-4,  
2136-89-2,  
5216-25-1<sup>d</sup>  
1321-03-5  
75-45-6  
25497-29-4  
67-66-3  
25586-43-0  
88-73-3  
100-00-5  
25167-80-0  
126-99-8  
7790-94-5  
108-41-8  
95-49-8  
106-43-4  
75-72-9  
108-39-4  
95-48-7  
106-44-5  
1319-77-3  
1319-77-3  
4170-30-0  
3724-65-0  
98-82-8  
80-15-9  
372-09-8  
506-77-4  
108-80-5  
108-77-0  
110-82-7  
108-93-0  
108-94-1  
110-83-8  
108-91-8  
111-78-4  
112-30-1  
123-42-2  
27576-04-1

p-chloroaniline  
Chlorobenzaldehyde  
Chlorobenzene  
Chlorobenzoic acid  
  
Chlorobenzotrichloride  
  
Chlorobenzoyl chloride  
Chlorodifluoroethane  
Chlorodifluoromethane  
Chloroform  
Chloronaphthalene  
o-chloronitrobenzene  
p-chloronitrobenzene  
Chlorophenols  
Chloroprene  
Chlorosulfonic acid  
m-chlorotoluene  
o-chlorotoluene  
p-chlorotoluene  
Chlorotrifluoromethane  
m-cresol  
o-cresol  
p-cresol  
Mixed cresols  
Cresylic acid  
Crotonaldehyde  
Crotonic acid  
Cumene  
Cumene hydroperoxide  
Cyanoacetic acid  
Cyanogen chloride  
Cyanuric acid  
Cyanuric chloride  
Cyclohexane  
Cyclohexanol  
Cyclohexanone  
Cyclohexene  
Cyclohexylamine  
Cyclooctadiene  
Decanol  
Diacetone alcohol  
Diaminobenzoic acid

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95-76-1,  
95-82-9,  
554-00-7,  
608-27-5,  
608-31-1,  
626-43-7,  
27134-27-6<sup>e</sup>  
57311-92-9<sup>f</sup>  
541-73-1  
95-50-1  
106-46-7  
75-71-8  
111-44-4  
107-06-2  
96-23-1  
26952-23-8  
101-83-7  
109-89-7  
111-46-6  
112-36-7  
111-96-6  
112-34-5  
124-17-7  
  
111-90-0  
112-15-2  
111-77-3  
64-67-5  
75-37-6  
25167-70-8  
26761-40-0  
27554-26-3  
674-82-8  
124-40-3  
121-69-7  
115-10-6  
68-12-2  
57-14-7  
77-78-1  
75-18-3  
67-68-5  
120-61-6  
99-34-3  
51-28-5

Dichloroaniline  
  
m-dichlorobenzene  
o-dichlorobenzene  
p-dichlorobenzene  
Dichlorodifluoromethane  
Dichloroethyl ether  
1,2-dichloroethane (EDC)  
Dichlorohydrin  
Dichloropropene  
Dicyclohexylamine  
Diethylamine  
Diethylene glycol  
Diethylene glycol diethyl ether  
Diethylene glycol dimethyl ether  
Diethylene glycol monobutyl ether  
Diethylene glycol monobutyl ether acetate  
Diethylene glycol monoethyl ether  
Diethylene glycol monoethyl ether acetate  
Diethyl sulfate  
Difluoroethane  
Diisobutylene  
Diisodecyl phthalate  
Diisooctyl phthalate  
Diketene  
Dimethylamine  
N,N-dimethylaniline  
N,N-dimethyl ether  
N,N-dimethylformamide  
Dimethylhydrazine  
Dimethyl sulfate  
Dimethyl sulfide  
Dimethyl sulfoxide  
Dimethyl terephthalate  
3,5-dinitrobenzoic acid  
Dinitrophenol  
Dinitrotoluene



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123-91-1  
 646-06-0  
 122-39-4  
 101-84-4  
 102-08-9  
 25265-71-8  
 25378-22-7  
 28675-17-4  
 27193-86-8  
 106-89-8  
 64-17-5  
 141-43-5<sup>c</sup>  
 141-78-6  
 141-97-9  
 140-88-5  
 75-04-7  
 100-41-4  
 74-96-4  
 9004-57-3  
 75-00-3  
 105-39-5  
 105-56-6  
 74-85-1  
 96-49-1  
 107-07-3  
 107-15-3  
 106-93-4  
 107-21-1  
 111-55-7  
 110-71-4  
 111-76-2  
 112-07-2  
 110-80-5  
 111-15-9  
 109-86-4  
 110-49-6  
 122-99-6  
 2807-30-9  
 75-21-8  
 60-29-7  
 104-76-7  
 122-51-0  
 95-92-1  
 41892-71-1  
 50-00-0

Dioxane  
 Dioxilane  
 Diphenylamine  
 Diphenyl oxide  
 Diphenyl thiourea  
 Dipropylene glycol  
 Dodecene  
 Dodecylaniline  
 Dodecylphenol  
 Epichlorohydrin  
 Ethanol  
 Ethanolamines  
 Ethyl acetate  
 Ethyl acetoacetate  
 Ethyl acrylate  
 Ethylamine  
 Ethylbenzene  
 Ethyl bromide  
 Ethylcellulose  
 Ethyl chloride  
 Ethyl chloroacetate  
 Ethylcyanoacetate  
 Ethylene  
 Ethylene carbonate  
 Ethylene chlorohydrin  
 Ethylenediamine  
 Ethylene dibromide  
 Ethylene glycol  
 Ethylene glycol diacetate  
 Ethylene glycol dimethyl ether  
 Ethylene glycol monobutyl ether  
 Ethylene glycol monobutyl ether acetate  
 Ethylene glycol monoethyl ether  
 Ethylene glycol monoethyl ether acetate  
 Ethylene glycol monoethyl ether acetate  
 Ethylene glycol monomethyl ether  
 Ethylene glycol monophenyl ether  
 Ethylene glycol monopropyl ether  
 Ethylene oxide  
 Ethyl ether  
 2-ethylhexanol  
 Ethyl orthoformate  
 Ethyl oxalate  
 Ethyl sodium oxaloacetate  
 Formaldehyde

75-12-7  
 64-18-6  
 110-17-8  
 98-01-1  
 56-81-5  
 26545-73-7  
 25791-96-2  
 56-40-6  
 107-22-2  
 118-74-1  
 67-72-1  
 36653-82-4  
 124-09-4  
 629-11-8  
 100-97-0  
 74-90-8  
 123-31-9  
 99-96-7  
 26760-64-5  
 78-83-1  
 110-19-0  
 115-11-7  
 78-84-2  
 79-31-2  
 25339-17-7  
 26952-21-6  
 78-78-4  
 78-59-1  
 121-91-5  
 78-79-5  
 67-63-0  
 108-21-4  
 75-31-0  
 75-29-6  
 25168-06-3  
 463-51-4  
 (b)  
 123-01-3  
 110-16-7  
 108-31-6  
 6915-15-7  
 141-79-7  
 121-47-1  
 79-41-4  
 563-47-3

Formamide  
 Formic acid  
 Fumaric acid  
 Furfural  
 Glycerol (Synthetic)  
 Glycerol dichlorohydrin  
 Glycerol triether  
 Glycine  
 Glyoxal  
 Hexachlorobenzene  
 Hexachloroethane  
 Hexadecyl alcohol  
 Hexamethylenediamine  
 Hexamethylene glycol  
 Hexamethylenetetramine  
 Hydrogen cyanide  
 Hydroquinone  
 p-hydroxybenzoic acid  
 Isoamylene  
 Isobutanol  
 Isobutyl acetate  
 Isobutylene  
 Isobutyraldehyde  
 Isobutyric acid  
 Isodecanol  
 Isooctyl alcohol  
 Isopentane  
 Isophorone  
 Isophthalic acid  
 Isoprene  
 Isopropanol  
 Isopropyl acetate  
 Isopropylamine  
 Isopropyl chloride  
 Isopropylphenol  
 Ketene  
 Linear alkyl sulfonate\*  
 Linear alkylbenzene  
 Maleic acid  
 Maleic anhydride  
 Malic acid  
 Mesityl oxide  
 Metanilic acid  
 Methacrylic acid  
 Methallyl chloride

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67-56-1 Methanol  
79-20-9 Methyl acetate  
105-45-3 Methyl acetoacetate  
74-89-5 Methylamine  
100-61-8 n-methylaniline  
74-83-9 Methyl bromide  
37365-71-2 Methyl butynol  
74-87-3 Methyl chloride  
108-87-2 Methyl cyclohexane  
1331-22-2 Methyl cyclohexanone  
75-09-2 Methylene chloride  
101-77-9 Methylene dianiline  
101-68-8 Methylene diphenyl diisocyanate  
78-93-3 Methyl ethyl ketone  
107-31-3 Methyl formate  
108-11-2 Methyl isobutyl carbinol  
108-10-1 Methyl isobutyl ketone  
80-62-6 Methyl methacrylate  
77-75-8 Methylpentynol  
98-83-9 B-methylstyrene  
110-91-8 Morpholine  
85-47-2 a-naphthalene sulfonic acid  
120-18-3 B-naphthalene sulfonic acid  
90-15-3 a-naphthol  
135-19-3 B-naphthol  
75-98-9 Neopentanoic acid  
88-74-4 o-nitroaniline  
100-01-6 p-nitroaniline  
91-23-6 o-nitroanisole  
100-17-4 p-nitroanisole  
98-95-3 Nitrobenzene  
27178-83-2<sup>c</sup> Nitrobenzoic acid (o, m & p)  
79-24-3 Nitroethane  
75-52-5 Nitromethane  
88-75-5 Nitrophenol  
25322-01-4 Nitropropane  
1321-12-6 Nitrotoluene  
27215-95-8 Nonene  
25154-52-3 Nonylphenol  
27193-28-8 Octylphenol  
123-63-7 Paraldehyde  
115-77-5 Pentaerythritol  
109-66-0 n-pentane  
109-67-1 l-pentene  
127-18-4 Perchloroethylene

594-42-3 Perchloromethyl mercaptan  
94-70-2 o-phenetidine  
156-43-4 p-phenetidine  
108-95-2 Phenol  
98-67-9, Phenolsulfonic acids  
585-38-6,  
609-46-1,  
133-39-7<sup>c</sup>  
91-40-7  
(b)  
75-44-5  
85-44-9  
85-41-6  
108-99-6  
110-85-0  
9003-29-6,  
25036-29-7<sup>c</sup>  
25322-68-3  
25322-69-4  
123-38-6  
79-09-4  
71-23-8  
107-10-8  
540-54-5  
115-07-1  
127-00-4  
78-87-5  
57-55-6  
75-56-9  
110-86-1  
106-51-4  
108-46-3  
27138-57-4  
69-72-7  
127-09-3  
532-32-1  
9004-32-4  
3926-62-3  
141-53-7  
139-02-6  
110-44-1  
100-42-5  
110-15-6  
110-61-2  
121-57-3

Phenyl anthranilic acid  
Phenylenediamine  
Phosgene  
Phthalic anhydride  
Phthalimide  
b-picoline  
Piperazine  
Polybutenes  
Polyethylene glycol  
Polypropylene glycol  
Propionaldehyde  
Propionic acid  
n-propyl alcohol  
Propylamine  
Propyl chloride  
Propylene  
Propylene chlorohydrin  
Propylene dichloride  
Propylene glycol  
Propylene oxide  
Pyridine  
Quinone  
Resorcinol  
Resorcylic acid  
Salicylic acid  
Sodium acetate  
Sodium benzoate  
Sodium carboxymethyl cellulose  
Sodium chloroacetate  
Sodium formate  
Sodium phenate  
Sorbic acid  
Styrene  
Succinic acid  
Succinitrile  
Sulfanilic acid



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126-33-0	Sulfolane	(b)	9009-53-6	Polypropylene
1401-55-4	Tannic acid			Polystyrene
100-21-0	Terephthalic acid			
79-34-5 <sup>c</sup>	Tetrachloroethanes			
117-08-8	Tetrachlorophthalic anhydride			
78-00-2	Tetraethyllead			
119-64-2	Tetrahydronaphthalene			
85-43-8	Tetrahydrophthalic anhydride			
75-74-1	Tetramethyllead			
110-60-1	Tetramethylethylenediamine			
110-18-9	Tetramethylethylenediamine			
108-88-3	Toluene			
95-80-7	Toluene-2,4-diamine			
584-84-9	Toluene-2,4-diisocyanate			
26471-62-5	Toluene diisocyanates (mixture)			
1333-07-9	Toluene sulfonamide			
104-15-4 <sup>c</sup>	Toluenesulfonic acids			
98-59-9	Toluene sulfonfyl chloride			
26915-12-8	Toluidines			
87-61-6,	Trichlorobenzenes			
108-70-3,				
120-82-1 <sup>c</sup>				
71-55-6	1,1,1-trichloroethane			
79-00-5	1,1,2-trichloroethane			
79-01-6	Trichloroethylene			
75-69-4	Trichlorofluoromethane			
96-18-4	1,2,3-trichloropropane			
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane			
121-44-8	Triethylamine			
112-27-6	Triethylene glycol			
112-49-2	Triethylene glycoldimethyl ether			
7756-94-7	Triisobutylene			
75-50-3	Trimethylamine			
57-13-6	Urea			
108-05-4	Vinyl acetate			
75-01-4	Vinyl chloride			
75-35-4	Vinylidene chloride			
25013-15-4	Vinyl toluene			
1330-20-7	Xylenes (mixed)			
95-47-6	o-xylene			
106-42-3	p-xylene			
1300-71-6	Xylenol			
1300-73-8	Xylidine			
(b)	methyl tert-butyl ether			
9002-88-4	Polyethylene			

- (b)
- 9009-53-6
- Polypropylene
- Polystyrene
- a) CAS numbers refer to the Chemical Abstracts Registry numbers assigned to specific chemicals, isomers or mixtures of chemicals. Some isomers or mixtures that are covered by the standards do not have CAS numbers assigned to them. The standards apply to all of the chemicals listed, whether CAS numbers have been assigned or not.
- b) No CAS number(s) have been assigned to this chemical, to its isomers, or mixtures containing these chemicals.
- c) CAS numbers for some of the isomers are listed: the standards apply to all of the isomers and mixtures, even if CAS numbers have not been assigned.



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VOM MEASUREMENT TECHNIQUES FOR CAPTURE EFFICIENCY

## Procedure G.1 - Captured VOC Emissions

## 1. INTRODUCTION

1.1 Applicability. This procedure is applicable for determining the volatile organic compounds (VOC) content of captured gas streams. It is intended to be used as a segment in the development of liquid/gas or gas/gas protocols for determining VOC capture efficiency (CE) for surface coating and printing operations. The procedure may not be acceptable in certain site-specific situations, e.g., when: (1) direct fired heaters or other circumstances affect the quantity of VOC at the control device inlet; and (2) particulate organic aerosols are formed in the process and are present in the captured emissions.

1.2 Principle. The amount of VOC captured (G) is calculated as the sum of the products of the VOC content ( $C_{gj}$ ), the flow rate ( $Q_{gj}$ ), and the sample time ( $T_c$ ) from each captured emissions point.

1.3 Estimated Measurement Uncertainty. The measurement uncertainties are estimated for each captured or fugitive emissions point as follows:  $Q_{gj} = 5.5$  percent and  $C_{gj} = \pm 5.0$  percent. Based on these numbers, the probable uncertainty for G is estimated at about  $\pm 7.4$  percent.

1.4 Sampling Requirements. A capture efficiency test shall consist of at least three sampling runs. The sampling time for each run should be at least 8 hours, unless otherwise approved.

1.5 Notes. Because this procedure is often applied in highly explosive areas, caution and care should be exercised in choosing appropriate equipment and installing and using the equipment. Mention of trade names or company products does not constitute endorsement. All gas concentrations (percent, ppm) are by volume, unless otherwise noted.

## 2. APPARATUS AND REAGENTS

2.1 Gas VOC Concentration. A schematic of the measurement

system is shown in Figure 1. The main components are described below:

2.1.1 Sample Probe. Stainless steel, or equivalent. The probe shall be heated to prevent VOC condensation.

2.1.2 Calibration Valve Assembly. Three-way valve assembly at the outlet of sample probe to direct the zero and calibration gases to the analyzer. Other methods, such as quick-connect lines, to route calibration gases to the outlet of the sample probe are acceptable.

2.1.3 Sample Line. Stainless steel or Teflon tubing to transport the sample gas to the analyzer. The sample line must be heated to prevent condensation.

2.1.4 Sample Pump. A leak-free pump, to pull the sample gas through the system at a flow rate sufficient to minimize the response time of the measurement system. The components of the pump that contact the gas stream shall be constructed of stainless steel or Teflon. The sample pump must be heated to prevent condensation.

2.1.5 Sample Flow Rate Control. A sample flow rate control valve and rotameter, or equivalent, to maintain a constant sampling rate within 10 percent. The flow rate control valve and rotameter must be heated to prevent condensation. A control valve may also be located on the sample pump bypass loop to assist in controlling the sample pressure and flow rate.

2.1.6 Sample Gas Manifold. Capable of diverting a portion of the sample gas stream to the flame ionization analyzer (FIA), and the remainder to the bypass discharge vent. The manifold components shall be constructed of stainless steel or Teflon. If captured or fugitive emissions are to be measured at multiple locations, the measurement system shall be designed to use separate sampling probes, lines, and pumps for each measurement location and a common sample gas manifold and FIA. The sample gas manifold and connecting lines to the FIA must be heated to prevent condensation.

2.1.7 Organic Concentration Analyzer. An FIA with a span value of 1.5 times the expected concentration as propane; however, other span values may be used if it can be demonstrated that they would provide more accurate measurements. The system shall be capable of meeting or exceeding the following specifications:



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2.1.1.7.1 Zero Drift. Less than  $\pm 3.0$  percent of the span value.

2.1.1.7.2 Calibration Drift. Less than  $\pm 3.0$  percent of the span value.

2.1.1.7.3 Calibration Error. Less than  $\pm 5.0$  percent of the calibration gas value.

2.1.1.7.4 Response Time. Less than 30 seconds.

2.1.1.8 Integrator/Data Acquisition System. An analog or digital device or computerized data acquisition system used to integrate the FIA response or compute the average response and record measurement data. The minimum data sampling frequency for computing average or integrated values is one measurement value every 5 seconds. The device shall be capable of recording average values at least once per minute.

2.1.1.9 Calibration and Other Gases. Gases used for calibration, fuel, and combustion air (if required) are contained in compressed gas cylinders. All calibration gases shall be traceable to NIST standards and shall be certified by the manufacturer to  $\pm 1$  percent of the tag value. Additionally, the manufacturer of the cylinder should provide a recommended shelf life for each calibration gas cylinder over which the concentration does not change more than  $\pm 2$  percent from the certified value. For calibration gas values not generally available, alternative methods for preparing calibration gas mixtures, such as dilution systems, may be used with prior approval.

2.1.1.9.1 Fuel. A 40 percent  $H_2/60$  percent He or 40 percent  $H_2/60$  percent  $N_2$  gas mixture is recommended to avoid an oxygen synergism effect that reportedly occurs when oxygen concentration varies significantly from a mean value.

2.1.1.9.2 Carrier Gas. High purity air with less than 1 ppm of organic material (as propane or carbon equivalent) or less than 0.1 percent of the span value, whichever is greater.

2.1.1.9.3 FIA Linearity Calibration Gases. Low-, mid-, and high-range gas mixture standards with nominal propane concentrations of 20-30, 45-55, and 70-80 percent of the span value in air, respectively. Other calibration values and other

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span values may be used if it can be shown that more accurate measurements would be achieved.

2.1.1.10 Particulate Filter. An in-stack or an out-of-stack glass fiber filter is recommended if exhaust gas particulate loading is significant. An out-of-stack filter must be heated to prevent any condensation unless it can be demonstrated that no condensation occurs.

2.2 Captured Emissions Volumetric Flow Rate.

2.2.1 Method 2 or 2A Apparatus. For determining volumetric flow rate.

2.2.2 Method 3 Apparatus and Reagents. For determining molecular weight of the gas stream. An estimate of the molecular weight of the gas stream may be used if it can be justified.

2.2.3 Method 4 Apparatus and Reagents. For determining moisture content, if necessary.

## 3. DETERMINATION OF VOLUMETRIC FLOW RATE OF CAPTURED EMISSIONS

3.1 Locate all points where emissions are captured from the affected facility. Using Method 1, determine the sampling points. Be sure to check each site for cyclonic or swirling flow.

3.2 Measure the velocity at each sampling site at least once every hour during each sampling run using Method 2 or 2A.

## 4. DETERMINATION OF VOC CONTENT OF CAPTURED EMISSIONS

4.1 Analysis Duration. Measure the VOC responses at each captured emissions point during the entire test run or, if applicable, while the process is operating. If there are multiple captured emission locations, design a sampling system to allow a single FIA to be used to determine the VOC responses at all sampling locations.

4.2 Gas VOC Concentration.

4.2.1 Assemble the sample train as shown in Figure 1. Calibrate the FIA according to the procedure in Section 5.1.

4.2.2 Conduct a system check according to the procedure in



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## Section 5.3.

4.2.3 Install the sample probe so that the probe is centrally located in the stack, pipe, or duct, and is sealed tightly at the stack port connection.

4.2.4 Inject zero gas at the calibration valve assembly. Allow the measurement system response to reach zero. Measure the system response time as the time required for the system to reach the effluent concentration after the calibration valve has been returned to the effluent sampling position.

4.2.5 Conduct a system check before and a system drift check after each sampling run according to the procedures in Sections 5.2 and 5.3. If the drift check following a run indicates unacceptable performance, the run is not valid. The tester may elect to perform system drift checks during the run not to exceed one drift check per hour.

4.2.6 Verify that the sample lines, filter, and pump temperatures are  $120 \pm 5^\circ\text{C}$ .

4.2.7 Begin sampling at the start of the test period and continue to sample during the entire run. Record the starting and ending times and any required process information as appropriate. If multiple captured emission locations are sampled using a single FIA, sample at each location for the same amount of time (e.g., 2 minutes) and continue to switch from one location to another for the entire test run. Be sure that total sampling time at each location is the same at the end of the test run. Collect at least 4 separate measurements from each sample point during each hour of testing. Disregard the measurements at each sampling location until two times the response time of the measurement system has elapsed. Continue sampling for at least 1 minute and record the concentration measurements.

## 4.3 Background Concentration.

4.3.1 Locate all NDO's of the TTE. A sampling point shall be centrally located outside of the TTE at 4 equivalent diameters from each NDO, if possible. If there are more than 6 NDO's, choose 6 sampling points evenly spaced among the NDO's.

4.3.2 Assemble the sample train as shown in Figure 2. Calibrate the FIA and conduct a system check according to the procedures in

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Sections 5.1 and 5.3. NOTE: This sample train shall be a separate sampling train from the one to measure the captured emissions.

4.3.3 Position the probe at the sampling location.

4.3.4 Determine the response time, conduct the system check and sample according to the procedures described in Sections 4.2.4 to 4.2.7.

4.4 Alternative Procedure. The direct interface sampling and analysis procedure described in Section 7.2 of Method 18 may be used to determine the gas VOC concentration. The system must be designed to collect and analyze at least one sample every 10 minutes.

## 5. CALIBRATION AND QUALITY ASSURANCE

5.1 FIA Calibration and Linearity Check. Make necessary adjustments to the air and fuel supplies for the FIA and ignite the burner. Allow the FIA to warm up for the period recommended by the manufacturer. Inject a calibration gas into the measurement system and adjust the back-pressure regulator to the value required to achieve the flow rates specified by the manufacturer. Inject the zero- and the high-range calibration gases and adjust the analyzer calibration to provide the proper responses. Inject the low- and mid-range gases and record the responses of the measurement system. The calibration and linearity of the system are acceptable if the responses for all four gases are within 5 percent of the respective gas values. If the performance of the system is not acceptable, repair or adjust the system and repeat the linearity check. Conduct a calibration and linearity check after assembling the analysis system and after a major change is made to the system.

5.2 Systems Drift Checks. Select the calibration gas that most closely approximates the concentration of the captured emissions for conducting the drift checks. Introduce the zero and calibration gas at the calibration valve assembly and verify that the appropriate gas flow rate and pressure are present at the FIA. Record the measurement system responses to the zero and calibration gases. The performance of the system is acceptable if the difference between the drift check measurement and the value obtained in Section 5.1 is less than 3 percent of the span value. Conduct the system drift checks at the end of each run.



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5.3 System Check. Inject the high range calibration gas at the inlet of the sampling probe and record the response. The performance of the system is acceptable if the measurement system response is within 5 percent of the value obtained in Section 5.1 for the high range calibration gas. Conduct a system check before and after each test run.

5.4 Analysis Audit. Immediately before each test analyze an audit cylinder as described in Section 5.2. The analysis audit must agree with the audit cylinder concentration within 10 percent.

## 6. NOMENCLATURE

$A_i$  = area of NDO i, ft<sup>2</sup>.

$A_N$  = total area of all NDO's in the enclosure, ft<sup>2</sup>.

$C_{Gj}$  = corrected average VOC concentration of background emissions at point j, ppm propane.

$C_B$  = average background concentration, ppm propane.

$C_{Gj}$  = corrected average VOC concentration of captured emissions at point j, ppm propane.

$C_{DH}$  = average measured concentration for the drift check calibration gas, ppm propane.

$C_{D0}$  = average system drift check concentration for zero concentration gas, ppm propane.

$C_H$  = actual concentration of the drift check calibration gas, ppm propane.

$C_i$  = uncorrected average background VOC concentration measured at point i, ppm propane.

$C_j$  = uncorrected average VOC concentration measured at point j, ppm propane.

$G$  = total VOC content of captured emissions, kg.

$K_1$  =  $1.830 \times 10^{-6}$  kg/(m<sup>3</sup>-ppm).

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$n$  = number of measurement points.

$Q_{Gj}$  = average effluent volumetric flow rate corrected to standard conditions at captured emissions point j, m<sup>3</sup>/min.

$T_c$  = total duration of captured emissions sampling run, min.

## 7. CALCULATIONS

### 7.1 Total VOC Captured Emissions.

$$G = \sum_{j=1}^n (C_{Gj} - C_B) Q_{Gj} T_c K_1 \quad \text{Eq. 1}$$

### 7.2 VOC Concentration of the Captured Emissions at Point j.

$$C_{Gj} = (C_j - C_{D0}) \frac{C_H}{C_{DH} - C_{D0}} \quad \text{Eq. 2}$$

### 7.3 Background VOC Concentration at Point i.

$$C_{Bi} = (C_i - C_{D0}) \frac{C_H}{C_{DH} - C_{D0}} \quad \text{Eq. 3}$$

### 7.4 Average Background Concentration.

$$C_B = \frac{\sum_{i=1}^n C_{Bi} A_i}{n A_N} \quad \text{Eq. 4}$$

NOTE: If the concentration at each point is within 20 percent of the average concentration of all points, the terms " $A_i$ " and " $A_N$ " may be deleted from Equation 4.

## Procedure G.2 - Captured VOC Emissions (Dilution Technique)

## 1. INTRODUCTION

1.1 Applicability. This procedure is applicable for determining the volatile organic compounds (VOC) content of captured gas streams. It is intended to be used as a segment in the



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development of a gas/gas protocol in which fugitive emissions are measured for determining VOC capture efficiency (CE) for surface coating and printing operations. A dilution system is used to reduce the VOC concentration of the captured emission to about the same concentration as the fugitive emissions. The procedure may not be acceptable in certain site-specific situations, e.g., when: (1) direct fired heaters or other circumstances affect the quantity of VOC at the control device inlet; and (2) particulate organic aerosols are formed in the process and are present in the captured emissions.

1.2 Principle. The amount of VOC captured ( $G$ ) is calculated as the sum of the products of the VOC content ( $C_{Gj}$ ), the flow rate ( $Q_{Gj}$ ), and the sampling time ( $T_c$ ) from each captured emissions point.

1.3 Estimated Measurement Uncertainty. The measurement uncertainties are estimated for each captured or fugitive emissions point as follows:  $Q_{Gj} = \pm 5.5$  percent and  $C_{Gj} = \pm 5$  percent. Based on these numbers, the probable uncertainty for  $G$  is estimated at about  $\pm 7.4$  percent.

1.4 Sampling Requirements. A capture efficiency test shall consist of at least three sampling runs. The sampling time for each run should be at least 8 hours, unless otherwise approved.

1.5 Notes. Because this procedure is often applied in highly explosive areas, caution and care should be exercised in choosing appropriate equipment and installing and using the equipment. Mention of trade names or company products does not constitute endorsement. All gas concentrations (percent, ppm) are by volume, unless otherwise noted.

## 2. APPARATUS AND REAGENTS

2.1 Gas VOC Concentration. A schematic of the measurement system is shown in Figure 1. The main components are described below:

2.1.1 Dilution System. A Kipp in-stack dilution probe and controller or similar device may be used. The dilution rate may be changed by substituting different critical orifices or adjustments of the aspirator supply pressure. The dilution system shall be heated to prevent VOC condensation. Note: An out-of-stack dilution device may be used.

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2.1.2 Calibration Valve Assembly. Three-way valve assembly at the outlet of sample probe to direct the zero and calibration gases to the analyzer. Other methods, such as quick-connect lines, to route calibration gases to the outlet of the sample probe are acceptable.

2.1.3 Sample Line. Stainless steel or Teflon tubing to transport the sample gas to the analyzer. The sample line must be heated to prevent condensation.

2.1.4 Sample Pump. A leak-free pump, to pull the sample gas through the system at a flow rate sufficient to minimize the response time of the measurement system. The components of the pump that contact the gas stream shall be constructed of stainless steel or Teflon. The sample pump must be heated to prevent condensation.

2.1.5 Sample Flow Rate Control. A sample flow rate control valve and rotameter, or equivalent, to maintain a constant sampling rate within 10 percent. The flow control valve and rotameter must be heated to prevent condensation. A control valve may also be located on the sample pump bypass loop to assist in controlling the sample pressure and flow rate.

2.1.6 Sample Gas Manifold. Capable of diverting a portion of the sample gas stream to the flame ionization analyzer (FIA), and the remainder to the bypass discharge vent. The manifold components shall be constructed of stainless steel or Teflon. If captured or fugitive emissions are to be measured at multiple locations, the measurement system shall be designed to use separate sampling probes, lines, and pumps for each measurement location and a common sample gas manifold and FIA. The sample gas manifold and connecting lines to the FIA must be heated to prevent condensation.

2.1.7 Organic Concentration Analyzer. An FIA with a span value of 1.5 times the expected concentration as propane; however, other span values may be used if it can be demonstrated that they would provide more accurate measurements. The system shall be capable of meeting or exceeding the following specifications:

2.1.7.1 Zero Drift. Less than  $\pm 3.0$  percent of the span value.

2.1.7.2 Calibration Drift. Less than  $\pm 3.0$  percent of the span



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value.

2.1.7.3 Calibration Error. Less than  $\pm 5.0$  percent of the calibration gas value.

2.1.7.4 Response Time. Less than 30 seconds.

2.1.8 Integrator/Data Acquisition System. An analog or digital device or computerized data acquisition system used to integrate the FIA response or compute the average response and record measurement data. The minimum data sampling frequency for computing average or integrated values is one measurement value every 5 seconds. The device shall be capable of recording average values at least once per minute.

2.1.9 Calibration and Other Gases. Gases used for calibration, fuel, and combustion air (if required) are contained in compressed gas cylinders. All calibration gases shall be traceable to NIST standards and shall be certified by the manufacturer to  $\pm 1$  percent of the tag value. Additionally, the manufacturer of the cylinder should provide a recommended shelf life for each calibration gas cylinder over which the concentration does not change more than  $\pm 2$  percent from the certified value. For calibration gas values not generally available, alternative methods for preparing calibration gas mixtures, such as dilution systems, may be used with prior approval.

2.1.9.1 Fuel. A 40 percent  $H_2/60$  percent He or 40 percent  $H_2/60$  percent  $N_2$  gas mixture is recommended to avoid an oxygen synergism effect that reportedly occurs when oxygen concentration varies significantly from a mean value.

2.1.9.2 Carrier Gas and Dilution Air Supply. High purity air with less than 1 ppm of organic material (as propane or carbon equivalent) or less than 0.1 percent of the span value, whichever is greater.

2.1.9.3 FIA Linearity Calibration Gases. Low-, mid-, and high-range gas mixture standards with nominal propane concentrations of 20-30, 45-55, and 70-80 percent of the span value in air, respectively. Other calibration values and other span values may be used if it can be shown that more accurate measurements would be achieved.

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2.1.9.4 Dilution Check Gas. Gas mixture standard containing propane in air, approximately half the span value after dilution.

2.1.10 Particulate Filter. An in-stack or an out-of-stack glass fiber filter is recommended if exhaust gas particulate loading is significant. An out-of-stack filter must be heated to prevent any condensation unless it can be demonstrated that no condensation occurs.

2.2 Captured Emissions Volumetric Flow Rate.

2.2.1 Method 2 or 2A Apparatus. For determining volumetric flow rate.

2.2.2 Method 3 Apparatus and Reagents. For determining molecular weight of the gas stream. An estimate of the molecular weight of the gas stream may be used if it can be justified.

2.2.3 Method 4 Apparatus and Reagents. For determining moisture content, if necessary.

3. DETERMINATION OF VOLUMETRIC FLOW RATE OF CAPTURED EMISSIONS

3.1 Locate all points where emissions are captured from the affected facility. Using Method 1, determine the sampling points. Be sure to check each site for cyclonic or swirling flow.

3.2 Measure the velocity at each sampling site at least once every hour during each sampling run using Method 2 or 2A.

4. DETERMINATION OF VOC CONTENT OF CAPTURED EMISSIONS

4.1 Analysis Duration. Measure the VOC responses at each captured emissions point during the entire test run or, if applicable, while the process is operating. If there are multiple captured emissions locations, design a sampling system to allow a single FIA to be used to determine the VOC responses at all sampling locations.

4.2 Gas VOC Concentration.

4.2.1 Assemble the sample train as shown in Figure 1. Calibrate the FIA according to the procedure in Section 5.1.

4.2.2 Set the dilution ratio and determine the dilution factor according to the procedure in Section 5.3.



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4.2.3 Conduct a system check according to the procedure in Section 5.4.

4.2.4 Install the sample probe so that the probe is centrally located in the stack, pipe, or duct, and is sealed tightly at the stack port connection.

4.2.5 Inject zero gas at the calibration valve assembly.

Measure the system response time as the time required for the system to reach the effluent concentration after the calibration valve has been returned to the effluent sampling position.

4.2.6 Conduct a system check before and a system drift check after each sampling run according to the procedures in Sections 5.2 and 5.4. If the drift check following a run indicates unacceptable performance, the run is not valid. The tester may elect to perform system drift checks during the run not to exceed one drift check per hour.

4.2.7 Verify that the sample lines, filter, and pump temperatures are  $120 \pm 5^\circ\text{C}$ .

4.2.8 Begin sampling at the start of the test period and continue to sample during the entire run. Record the starting and ending times and any required process information as appropriate. If multiple captured emission locations are sampled using a single FIA, sample at each location for the same amount of time (e.g., 2 minutes) and continue to switch from one location to another for the entire test run. Be sure that total sampling time at each location is the same at the end of the test run. Collect at least 4 separate measurements from each sample point during each hour of testing. Disregard the measurements at each sampling location until two times the response time of the measurement system has elapsed. Continue sampling for at least 1 minute and record the concentration measurements.

4.3 Background Concentration.

4.3.1 Locate all NDO's of the TTE. A sampling point shall be centrally located outside of the TTE at 4 equivalent diameters from each NDO, if possible. If there are more than 6 NDO's, choose 6 sampling points evenly spaced among the NDO's.

4.3.2 Assemble the sample train as shown in Figure 2. Calibrate

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the FIA and conduct a system check according to the procedures in Sections 5.1 and 5.4.

4.3.3 Position the probe at the sampling location.

4.3.4 Determine the response time, conduct the system check and sample according to the procedures described in Sections 4.2.4 to 4.2.8.

4.4 Alternative Procedure. The direct interface sampling and analysis procedure described in Section 7.2 of Method 18 may be used to determine the gas VOC concentration. The system must be designed to collect and analyze at least one sample every 10 minutes.

## 5. CALIBRATION AND QUALITY ASSURANCE

5.1 FIA Calibration and Linearity Check. Make necessary adjustments to the air and fuel supplies for the FIA and ignite the burner. Allow the FIA to warm up for the period recommended by the manufacturer. Inject a calibration gas into the measurement system after the dilution system and adjust the flow pressure regulated to the value required to achieve the flow rates specified by the manufacturer. Inject the zero- and the high-range calibration gases and adjust the analyzer calibration to provide the proper responses. Inject the low- and mid-range gases and record the responses of the measurement system. The calibration and linearity of the system are acceptable if the responses for all four gases are within 5 percent of the respective gas values. If the performance of the system is not acceptable, repair or adjust the system and repeat the linearity check. Conduct a calibration and linearity check after assembling the analysis system and after a major change is made to the system.

5.2 Systems Drift Checks. Select the calibration gas that most closely approximates the concentration of the diluted captured emissions for conducting the drift checks. Introduce the zero and calibration gas at the calibration valve assembly and verify that the appropriate gas flow rate and pressure are present at the FIA. Record the measurement system responses to the zero and calibration gases. The performance of the system is acceptable if the difference between the drift check measurement and the value obtained in Section 5.1 is less than 3 percent of the span value. Conduct the system drift check at the end of each run.



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5.3 Determination of Dilution Factor. Inject the dilution check gas into the measurement system before the dilution system and record the response. Calculate the dilution factor using Equation 3.

5.4 System Check. Inject the high range calibration gas at the inlet to the sampling probe while the dilution air is turned off. Record the response. The performance of the system is acceptable if the measurement system response is within 5 percent of the value obtained in Section 5.1 for the high range calibration gas. Conduct a system check before and after each test run.

5.5 Analysis Audit. Immediately before each test analyze an audit cylinder as described in Section 5.2. The analysis audit must agree with the audit cylinder concentration within 10 percent.

## 6. NOMENCLATURE

$A_i$  = area of NDO i, ft<sup>2</sup>.

$A_N$  = total area of all NDO's in the enclosure, ft<sup>2</sup>.

$C_A$  = actual concentration of the dilution check gas, ppm propane.

$C_{Bi}$  = corrected average VOC concentration of background emissions at point i, ppm propane.

$C_B$  = average background concentration, ppm propane.

$C_{DH}$  = average measured concentration for the drift check calibration gas, ppm propane.

$C_{D0}$  = average system drift check concentration for zero concentration gas, ppm propane.

$C_H$  = actual concentration of the drift check calibration gas, ppm propane.

$C_i$  = uncorrected average background VOC concentration measured at point i, ppm propane.

$C_j$  = uncorrected average VOC concentration measured at

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point j, ppm propane.

$C_M$  = measured concentration of the dilution check gas, ppm propane.

DF = dilution factor.

G = total VOC content of captured emissions, kg.

$K_1$  =  $1.830 \times 10^{-6}$  kg/(m<sup>3</sup>-ppm).

n = number of measurement points.

$Q_{Gj}$  = average effluent volumetric flow rate corrected to standard conditions at captured emissions point j, m<sup>3</sup>/min.

$T_C$  = total duration of capture efficiency sampling run, min.

## 7. CALCULATIONS

7.1 Total VOC Captured Emissions.

$$G = \sum_{j=1}^n C_{Gj} Q_{Gj} T_C K_1 \quad \text{Eq. 1}$$

7.2 VOC Concentration of the Captured Emissions at Point j.

$$C_{Gj} = DF (C_j - C_{D0}) \frac{C_H}{C_{DH} - C_{D0}} \quad \text{Eq. 2}$$

7.3 Dilution Factor.

$$DF = \frac{C_A}{C_M} \quad \text{Eq. 3}$$

7.4 Background VOC Concentration at Point i.

$$C_{Bi} = (C_i - C_{D0}) \frac{C_H}{C_{DH} - C_{D0}} \quad \text{Eq. 4}$$



## 7.5 Average Background Concentration.

$$C_B = \frac{\sum_{i=1}^n C_{Bj} A_i}{nA_N} \quad \text{Eq. 5}$$

NOTE: If the concentration at each point is within 20 percent of the average concentration of all points, the terms "A<sub>i</sub>" and "A<sub>N</sub>" may be deleted from Equation 4.

## Procedure F.2 - Fugitive VOC Emissions from Building Enclosures

## 1. INTRODUCTION

1.1 Applicability. This procedure is applicable for determining the fugitive volatile organic compounds (VOC) emissions from a building enclosure (BE). It is intended to be used as a segment in the development of liquid/gas or gas/gas protocols for determining VOC capture efficiency (CE) for surface coating and printing operations.

1.2 Principle. The total amount of fugitive VOC emissions (F<sub>p</sub>) from the BE is calculated as the sum of the products of the VOC content (C<sub>Fj</sub>) of each fugitive emissions point, its flow rate (Q<sub>Fj</sub>), and time (T<sub>F</sub>).

1.3 Measurement Uncertainty. The measurement uncertainties are estimated for each fugitive emissions point as follows: Q<sub>Fj</sub> = ±5.0 percent and C<sub>Fj</sub> = ±5.0 percent. Based on these numbers, the probable uncertainty for F<sub>p</sub> is estimated at about ±11.2 percent.

1.4 Sampling Requirements. A capture efficiency test shall consist of at least three sampling runs. The sampling time for each run should be at least 8 hours, unless otherwise approved.

1.5 Notes. Because this procedure is often applied in highly explosive areas, caution and care should be exercised in choosing appropriate equipment and installing and using the equipment. Mention of trade names or company products does not constitute endorsement. All gas concentrations (percent, ppm) are by volume, unless otherwise noted.

## 2. APPARATUS AND REAGENTS

2.1 Gas VOC Concentration. A schematic of the measurement system is shown in Figure 1. The main components are described below:

2.1.1 Sample Probe. Stainless steel, or equivalent. The probe shall be heated to prevent VOC condensation.

2.1.2 Calibration Valve Assembly. Three-way valve assembly at the outlet of sample probe to direct the zero and calibration gases to the analyzer. Other methods, such as quick-connect lines, to route calibration gases to the outlet of the sample probe are acceptable.

2.1.3 Sample Line. Stainless steel or Teflon tubing to transport the sample gas to the analyzer. The sample line must be heated to prevent condensation.

2.1.4 Sample Pump. A leak-free pump, to pull the sample gas through the system at a flow rate sufficient to minimize the response time of the measurement system. The components of the pump that contact the gas stream shall be constructed of stainless steel or Teflon. The sample pump must be heated to prevent condensation.

2.1.5 Sample Flow Rate Control. A sample flow rate control valve and rotameter, or equivalent, to maintain a constant sampling rate within 10 percent. The flow rate control valve and rotameter must be heated to prevent condensation. A control valve may also be located on the sample pump bypass loop to assist in controlling the sample pressure and flow rate.

2.1.6 Sample Gas Manifold. Capable of diverting a portion of the sample gas stream to the flame ionization analyzer (FIA), and the remainder to the bypass discharge vent. The manifold components shall be constructed of stainless steel or Teflon. If emissions are to be measured at multiple locations, the measurement system shall be designed to use separate sampling probes, lines, and pumps for each measurement location and a common sample gas manifold and FIA. The sample gas manifold must be heated to prevent condensation.

2.1.7 Organic Concentration Analyzer. An FIA with a span value of 1.5 times the expected concentration as propane; however, other span values may be used if it can be demonstrated that they would provide more accurate measurements. The system shall be



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capable of meeting or exceeding the following specifications:

- 2.1.7.1 Zero Drift. Less than  $\pm 3.0$  percent of the span value.
- 2.1.7.2 Calibration Drift. Less than  $\pm 3.0$  percent of the span value.
- 2.1.7.3 Calibration Error. Less than  $\pm 5.0$  percent of the calibration gas value.
- 2.1.7.4 Response Time. Less than 30 seconds.

2.1.8 Integrator/Data Acquisition System. An analog or digital device or computerized data acquisition system used to integrate the FIA response or compute the average response and record measurement data. The minimum data sampling frequency for computing average or integrated values is one measurement value every 5 seconds. The device shall be capable of recording average values at least once per minute.

2.1.9 Calibration and Other Gases. Gases used for calibration, fuel, and combustion air (if required) are contained in compressed gas cylinders. All calibration gases shall be traceable to NIST standards and shall be certified by the manufacturer to  $\pm 1$  percent of the tag value. Additionally, the manufacturer of the cylinder should provide a recommended shelf life for each calibration gas cylinder over which the concentration does not change more than  $\pm 2$  percent from the certified value. For calibration gas values not generally available, alternative methods for preparing calibration gas mixtures, such as dilution systems, may be used with prior approval.

2.1.9.1 Fuel. A 40 percent  $H_2/60$  percent He or 40 percent  $H_2/60$  percent  $N_2$  gas mixture is recommended to avoid an oxygen synergism effect that reportedly occurs when oxygen concentration varies significantly from a mean value.

2.1.9.2 Carrier Gas. High purity air with less than 1 ppm of organic material (propane or carbon equivalent) or less than 0.1 percent of the span value, whichever is greater.

2.1.9.3 FIA Linearity Calibration Gases. Low-, mid-, and high-range gas mixture standards with nominal propane concentrations of 20-30, 45-55, and 70-80 percent of the span

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value in air, respectively. Other calibration values and other span values may be used if it can be shown that more accurate measurements would be achieved.

2.1.10 Particulate Filter. An in-stack or an out-of-stack glass fiber filter is recommended if exhaust gas particulate loading is significant. An out-of-stack filter must be heated to prevent any condensation unless it can be demonstrated that no condensation occurs.

## 2.2 Fugitive Emissions Volumetric Flow Rate.

2.2.1 Flow Direction Indicators. Any means of indicating inward or outward flow, such as light plastic film or paper streamers, smoke tubes, filaments, and sensory perception.

2.2.2 Method 2 or 2A Apparatus. For determining volumetric flow rate. Anemometers or similar devices calibrated according to the manufacturer's instructions may be used when low velocities are present. Vane anemometers (Young-maximum response propeller), specialized pitots with electronic manometers (e.g., Shortridge Instruments Inc., Airdata Multimeter 860) are commercially available with measurement thresholds of 15 and 8 mpm (50 and 25 fpm), respectively.

2.2.3 Method 3 Apparatus and Reagents. For determining molecular weight of the gas stream. An estimate of the molecular weight of the gas stream may be used if it can be justified.

2.2.4 Method 4 Apparatus and Reagents. For determining moisture content, if necessary.

## 3. DETERMINATION OF VOLUMETRIC FLOW RATE OF FUGITIVE EMISSIONS

3.1 Preliminary Determinations. The purpose of this exercise is to determine which exhaust points should be measured for volumetric flow rates and VOC concentrations.

3.1.1 Forced Draft Openings. Identify all forced draft openings. Determine the volumetric flow rate according to Method 2.

3.1.2 NDO's Exhaust Points. The NDO's in the roof of a facility are considered to be exhaust points. Determine volumetric flow rate from these NDO's. Divide the cross-sectional area according to Method 1 using 12 equal areas. Use the appropriate velocity



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measurement devices, e.g., propeller anemometers.

3.1.3 Other NDO's.

3.1.3.1 This step is optional. Determine the exhaust flow rate, including that of the control device, from the enclosure and the intake air flow rate. If the exhaust flow rate divided by the intake air flow rate is greater than 1.1, then all other NDO's are not considered to be significant exhaust points.

3.1.3.2 If the option above is not taken, identify all other NDO's and other potential points through which fugitive emissions may escape the enclosure. Then use the following criteria to determine whether flow rates and VOC concentrations need to be measured:

3.1.3.2.1 Using the appropriate flow direction indicator, determine the flow direction. An NDO with zero or inward flow is not an exhaust point.

3.1.3.2.2 Measure the outward volumetric flow rate from the remainder of the NDO's. If the collective flow rate is 2 percent, or less, of the flow rate from Sections 3.1.1 and 3.1.2, then these NDO's, except those within two equivalent diameters (based on NDO opening) from VOC sources, may be considered to be non-exhaust points.

3.1.3.2.3 If the percentage calculated in Section 3.1.3.2.2 is greater than 2 percent, those NDO's (except those within two equivalent diameters from VOC sources) whose volumetric flow rate total 2 percent of the flow rate from Sections 3.1.1 and 3.1.2 may be considered as non-exhaust points. All remaining NDO's shall be measured for volumetric flow rate and VOC concentrations during the CE test.

3.1.3.2.4 The tester may choose to measure VOC concentrations at the forced exhaust points and the NDO's. If the total VOC emissions from the NDO's are less than 2 percent of the emissions from the forced draft and roof NDO's, then these NDO's may be eliminated from further consideration.

3.2 Determination of Flow Rates.

3.2.1 Measure the volumetric flow rate at all locations identified as exhaust points in Section 3.1. Divide each exhaust opening into 9 equal areas for rectangular openings and 8 for

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circular openings.

3.2.2 Measure the velocity at each site at least once every hour during each sampling run using Method 2 or 2A, if applicable, or using the low velocity instruments in Section 2.2.2.

4. DETERMINATION OF VOC CONTENT OF FUGITIVE EMISSIONS

4.1 Analysis Duration. Measure the VOC responses at each fugitive emission point during the entire test run or, if applicable, while the process is operating. If there are multiple emissions locations, design a sampling system to allow a single FIA to be used to determine the VOC responses at all sampling locations.

4.2 Gas VOC Concentration.

4.2.1 Assemble the sample train as shown in Figure 1. Calibrate the FIA and conduct a system check according to the procedures in Sections 5.1 and 5.3, respectively.

4.2.2 Install the sample probe so that the probe is centrally located in the stack, pipe, or duct, and is sealed tightly at the stack port connection.

4.2.3 Inject zero gas at the calibration valve assembly. Allow the measurement system response to reach zero. Measure the system response time as the time required for the system to reach the effluent concentration after the calibration valve has been returned to the effluent sampling position.

4.2.4 Conduct a system check before and a system drift check after each sampling run according to the procedures in Sections 5.2 and 5.3. If the drift check following a run indicates unacceptable performance, the run is not valid. The tester may elect to perform drift checks during the run not to exceed one drift check per hour.

4.2.5 Verify that the sample lines, filter, and pump temperatures are 120 ±5°C.

4.2.6 Begin sampling at the start of the test period and continue to sample during the entire run. Record the starting and ending times and any required process information as appropriate. If multiple emission locations are sampled using a



single FIA, sample at each location for the same amount of time (e.g., 2 minutes) and continue to switch from one location to another for the entire test run. Be sure that total sampling time at each location is the same at the end of the test run. Collect at least 4 separate measurements from each sample point during each hour of testing. Disregard the response measurements at each sampling location until two times the response time of the measurement system has elapsed. Continue sampling for at least 1 minute and record the concentration measurements.

4.3 Alternative Procedure The direct interface sampling and analysis procedure described in Section 7.2 of Method 18 may be used to determine the gas VOC concentration. The system must be designed to collect and analyze at least one sample every 10 minutes.

#### 5. CALIBRATION AND QUALITY ASSURANCE

5.1 FIA Calibration and Linearity Check. Make necessary adjustments to the air and fuel supplies for the FIA and ignite the burner. Allow the FIA to warm up for the period recommended by the manufacturer. Inject a calibration gas into the measurement system and adjust the back-pressure regulator to the value required to achieve the flow rates specified by the manufacturer. Inject the zero- and the high-range calibration gases and adjust the analyzer calibration to provide the proper responses. Inject the low- and mid-range gases and record the responses of the measurement system. The calibration and linearity of the system are acceptable if the responses for all four gases are within 5 percent of the respective gas values. If the performance of the system is not acceptable, repair or adjust the system and repeat the linearity check. Conduct a calibration and linearity check after assembling the analysis system and after a major change is made to the system.

5.2 Systems Drift Checks. Select the calibration gas that most closely approximates the concentration of the captured emissions for conducting the drift checks. Introduce the zero and calibration gas at the calibration valve assembly and verify that the appropriate gas flow rate and pressure are present at the FIA. Record the measurement system responses to the zero and calibration gases. The performance of the system is acceptable if the difference between the drift check measurement and the value obtained in Section 5.1 is less than 3 percent of the span value. Conduct a system drift check at the end of each run.

5.3 System Check. Inject the high range calibration gas at the inlet of the sampling probe and record the response. The performance of the system is acceptable if the measurement system response is within 5 percent of the value obtained in Section 5.1 for the high range calibration gas. Conduct a system check before each test run.

5.4 Analysis Audit. Immediately before each test analyze an audit cylinder as described in Section 5.2. The analysis audit must agree with the audit cylinder concentration within 10 percent.

#### 6. NOMENCLATURE

$C_{DH}$  = average measured concentration for the drift check calibration gas, ppm propane.

$C_{DO}$  = average system drift check concentration for zero concentration gas, ppm propane.

$C_{Fj}$  = corrected average VOC concentration of fugitive emissions at point j, ppm propane.

$C_H$  = actual concentration of the drift check calibration gas, ppm propane.

$C_j$  = uncorrected average VOC concentration measured at point j, ppm propane.

$F_B$  = total VOC content of fugitive emissions from the building, kg.

$K_1 = 1.830 \times 10^{-6} \text{ kg/(m}^3\text{-ppm)}.$

$n$  = number of measurement points.

$Q_{Fj}$  = average effluent volumetric flow rate corrected to standard conditions at fugitive emissions point j, m<sup>3</sup>/min.

$T_F$  = total duration of capture efficiency sampling run, min.



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## 7. CALCULATIONS

## 7.1 Total VOC Fugitive Emissions From the Building.

$$F_B = \sum_{j=1}^n C_{Fj} Q_{Fj} T_F K_1 \quad \text{Eq. 1}$$

## 7.2 VOC Concentration of the Fugitive Emissions at Point j.

$$C_{Fj} = (C_j - C_{DO}) \frac{C_B}{C_{DB} - C_{DO}} \quad \text{Eq. 2}$$

## Procedure F.1 - Fugitive VOC Emissions from Temporary Enclosures

## 1. INTRODUCTION

1.1 Applicability. This procedure is applicable for determining the fugitive volatile organic compounds (VOC) emissions from a temporary total enclosure (TTE). It is intended to be used as a segment in the development of liquid/gas or gas/gas protocols for determining VOC capture efficiency (CE) for surface coating and printing operations.

1.2 Principle. The amount of fugitive VOC emissions (F) from the TTE is calculated as the sum of the products of the VOC content ( $C_{Fj}$ ), the flow rate ( $Q_{Fj}$ ), and the sampling time ( $T_F$ ) from each fugitive emissions point.

1.3 Estimated Measurement Uncertainty. The measurement uncertainties are estimated for each fugitive emission point as follows:  $Q_{Fj} = \pm 5.5$  percent and  $CF_j = \pm 5.0$  percent. Based on these numbers, the probable uncertainty for F is estimated at about  $\pm 7.4$  percent.

1.4 Sampling Requirements. A capture efficiency test shall consist of at least three sampling runs. The sampling time for each run should be at least 8 hours, unless otherwise approved.

1.5 Notes. Because this procedure is often applied in highly explosive areas, caution and care should be exercised in choosing appropriate equipment and installing and using the equipment. Mention of trade names or company products does not constitute

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endorsement. All gas concentrations (percent, ppm) are by volume, unless otherwise noted.

## 2. APPARATUS AND REAGENTS

2.1 Gas VOC Concentration. A schematic of the measurement system is shown in Figure 1. The main components are described below:

2.1.1 Sample Probe. Stainless steel, or equivalent. The probe shall be heated to prevent VOC condensation.

2.1.2 Calibration Valve Assembly. Three-way valve assembly at the outlet of sample probe to direct the zero and calibration gases to the analyzer. Other methods, such as quick-connect lines, to route calibration gases to the outlet of the sample probe are acceptable.

2.1.3 Sample Line. Stainless steel or Teflon tubing to transport the sample gas to the analyzer. The sample line must be heated to prevent condensation.

2.1.4 Sample Pump. A leak-free pump, to pull the sample gas through the system at a flow rate sufficient to minimize the response time of the measurement system. The components of the pump that contact the gas stream shall be constructed of stainless steel or Teflon. The sample pump must be heated to prevent condensation.

2.1.5 Sample Flow Rate Control. A sample flow rate control valve and rotameter, or equivalent, to maintain a constant sampling rate within 10 percent. The flow control valve and rotameter must be heated to prevent condensation. A control valve may also be located on the sample pump bypass loop to assist in controlling the sample pressure and flow rate.

2.1.6 Sample Gas Manifold. Capable of diverting a portion of the sample gas stream to the flame ionization analyzer (FIA), and the remainder to the bypass discharge vent. The manifold components shall be constructed of stainless steel or Teflon. If emissions are to be measured at multiple locations, the measurement system shall be designed to use separate sampling probes, lines, and pumps for each measurement location and a common sample gas manifold and FIA. The sample gas manifold and connecting lines to the FIA must be heated to prevent condensation.



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2.1.7 Organic Concentration Analyzer. An FIA with a span value of 1.5 times the expected concentration as propane; however, other span values may be used if it can be demonstrated that they would provide more accurate measurements. The system shall be capable of meeting or exceeding the following specifications:

- 2.1.7.1 Zero Drift. Less than  $\pm 3.0$  percent of the span value.
- 2.1.7.2 Calibration Drift. Less than  $\pm 3.0$  percent of the span value.
- 2.1.7.3 Calibration Error. Less than  $\pm 5.0$  percent of the calibration gas value.
- 2.1.7.4 Response Time. Less than 30 seconds.

2.1.8 Integrator/Data Acquisition System. An analog or digital device or computerized data acquisition system used to integrate the FIA response or compute the average response and record measurement data. The minimum data sampling frequency for computing average or integrated values is one measurement value every 5 seconds. The device shall be capable of recording average values at least once per minute.

2.1.9 Calibration and Other Gases. Gases used for calibration, fuel, and combustion air (if required) are contained in compressed gas cylinders. All calibration gases shall be traceable to NIST standards and shall be certified by the manufacturer to  $\pm 1$  percent of the tag value. Additionally, the manufacturer of the cylinder should provide a recommended shelf life for each calibration gas cylinder over which the concentration does not change more than  $\pm 2$  percent from the certified value. For calibration gas values not generally available, alternative methods for preparing calibration gas mixtures, such as dilution systems, may be used with prior approval.

2.1.9.1 Fuel. A 40 percent  $H_2/60$  percent He or 40 percent  $H_2/60$  percent  $N_2$  gas mixture is recommended to avoid an oxygen synergism effect that reportedly occurs when oxygen concentration varies significantly from a mean value.

2.1.9.2 Carrier Gas. High purity air with less than 1 ppm of organic material (as propane or carbon equivalent) or less than

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0.1 percent of the span value, whichever is greater.

2.1.9.3 FIA Linearity Calibration Gases. Low-, mid-, and high-range gas mixture standards with nominal propane concentrations of 20-30, 45-55, and 70-80 percent of the span value in air, respectively. Other calibration values and other span values may be used if it can be shown that more accurate measurements would be achieved.

2.1.10 Particulate Filter. An in-stack or an out-of-stack glass fiber filter is recommended if exhaust gas particulate loading is significant. An out-of-stack filter must be heated to prevent any condensation unless it can be demonstrated that no condensation occurs.

## 2.2 Fugitive Emissions Volumetric Flow Rate.

2.2.1 Method 2 or 2A Apparatus. For determining volumetric flow rate.

2.2.2 Method 3 Apparatus and Reagents. For determining molecular weight of the gas stream. An estimate of the molecular weight of the gas stream may be used if it can be justified.

2.2.3 Method 4 Apparatus and Reagents. For determining moisture content, if necessary.

2.3 Temporary Total Enclosure. The criteria for designing a TTE are discussed in Procedure T.

## 3. DETERMINATION OF VOLUMETRIC FLOW RATE OF FUGITIVE EMISSIONS

3.1 Locate all points where emissions are exhausted from the TTE. Using Method 4, determine the sampling points. Be sure to check each site for cyclonic or swirling flow.

3.2 Measure the velocity at each sampling site at least once every hour during each sampling run using Method 2 or 2A.

## 4. DETERMINATION OF VOC CONTENT OF FUGITIVE EMISSIONS

4.1 Analysis Duration. Measure the VOC responses at each fugitive emission point during the entire test run or, if applicable, while the process is operating. If there are multiple emission locations, design a sampling system to allow a single FIA to be used to determine the VOC responses at all



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## sampling locations.

## 4.2 Gas VOC Concentration.

4.2.1 Assemble the sample train as shown in Figure 1. Calibrate the FIA and conduct a system check according to the procedures in Sections 5.1 and 5.3, respectively.

4.2.2 Install the sample probe so that the probe is centrally located in the stack, pipe, or duct, and is sealed tightly at the stack port connection.

4.2.3 Inject zero gas at the calibration valve assembly. Allow the measurement system response to reach zero. Measure the system response time as the time required for the system to reach the effluent concentration after the calibration valve has been returned to the effluent sampling position.

4.2.4 Conduct a system check before and a system drift check after each sampling run according to the procedures in Sections 5.2 and 5.3. If the drift check following a run indicates unacceptable performance, the run is not valid. The tester may elect to perform system drift checks during the run not to exceed one drift check per hour.

4.2.5 Verify that the sample lines, filter, and pump temperatures are  $120 \pm 5^\circ\text{C}$ .

4.2.6 Begin sampling at the start of the test period and continue to sample during the entire run. Record the starting and ending times and any required process information as appropriate. If multiple emission locations are sampled using a single FIA, sample at each location for the same amount of time (e.g., 2 minutes) and continue to switch from one location to another for the entire test run. Be sure that total sampling time at each location is the same at the end of the test run. Collect at least 4 separate measurements from each sample point during each hour of testing. Disregard the response measurements at each sampling location until two times the response time of the measurement system has elapsed. Continue sampling for at least 1 minute and record the concentration measurements.

## 4.3 Background Concentration.

4.3.1 Determination of VOC Background Concentration.

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4.3.1.1 Locate all NDO's of the TTE. A sampling point shall be centrally located outside of the TTE at 4 equivalent diameters from each NDO, if possible. If there are more than 6 NDO's, choose 6 sampling points evenly spaced among the NDO's.

4.3.1.2 Assemble the sample train as shown in Figure 2. Calibrate the FIA and conduct a system check according to the procedures in Sections 5.1 and 5.3.

4.3.1.3 Position the probe at the sampling location.

4.3.1.4 Determine the response time, conduct the system check and sample according to the procedures described in Sections 4.2.3 to 4.2.6.

4.4 Alternative Procedure. The direct interface sampling and analysis procedure described in Section 7.2 of Method 18 may be used to determine the gas VOC concentration. The system must be designed to collect and analyze at least one sample every 10 minutes.

## 5. CALIBRATION AND QUALITY ASSURANCE

5.1 FIA Calibration and Linearity Check. Make necessary adjustments to the air and fuel supplies for the FIA and ignite the burner. Allow the FIA to warm up for the period recommended by the manufacturer. Inject a calibration gas into the measurement system and adjust the back-pressure regulator to the value required to achieve the flow rates specified by the manufacturer. Inject the zero- and the high-range calibration gases and adjust the analyzer calibration to provide the proper responses. Inject the low- and mid-range gases and record the responses of the measurement system. The calibration and linearity of the system are acceptable if the responses for all four gases are within 5 percent of the respective gas values. If the performance of the system is not acceptable, repair or adjust the system and repeat the linearity check. Conduct a calibration and linearity check after assembling the analysis system and after a major change is made to the system.

5.2 Systems Drift Checks. Select the calibration gas concentration that most closely approximates that of the fugitive gas emissions to conduct the drift checks. Introduce the zero and calibration gas at the calibration valve assembly and verify that the appropriate gas flow rate and pressure are present at the FIA. Record the measurement system responses to the zero and



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calibration gases. The performance of the system is acceptable if the difference between the drift check measurement and the value obtained in Section 5.1 is less than 3 percent of the span value. Conduct a system drift check at the end of each run.

5.3 System Check. Inject the high range calibration gas at the inlet of the sampling probe and record the response. The performance of the system is acceptable if the measurement system response is within 5 percent of the value obtained in Section 5.1 for the high range calibration gas. Conduct a system check before each test run.

5.4 Analysis Audit. Immediately before each test analyze an audit cylinder as described in Section 5.2. The analysis audit must agree with the audit cylinder concentration within 10 percent.

## 6. NOMENCLATURE

$A_i$  = area of NDO i, ft<sup>2</sup>.

$A_N$  = total area of all NDO's in the enclosure, ft<sup>2</sup>.

$C_{Bj}$  = corrected average VOC concentration of background emissions at point i, ppm propane.

$C_B$  = average background concentration, ppm propane.

$C_{DH}$  = average measured concentration for the drift check calibration gas, ppm propane.

$C_{D0}$  = average system drift check concentration for zero concentration gas, ppm propane.

$C_{Fj}$  = corrected average VOC concentration of fugitive emissions at point j, ppm propane.

$C_H$  = actual concentration of the drift check calibration gas, ppm propane.

$C_i$  = uncorrected average background VOC concentration at point i, ppm propane.

$C_j$  = uncorrected average VOC concentration measured at point j, ppm propane.

$F$  = total VOC content of fugitive emissions, kg.

$K_1 = 1.830 \times 10^{-6} \text{ kg/(m}^3\text{-ppm)}.$

$n$  = number of measurement points.

$Q_{Fj}$  = average effluent volumetric flow rate corrected to standard conditions at fugitive emissions point j, m<sup>3</sup>/min.

$T_F$  = total duration of fugitive emissions sampling run, min.

## 7. CALCULATIONS

## 7.1 Total VOC Fugitive Emissions.

$$F = \sum_{j=1}^n (C_{Fj} - C_B) Q_{Fj} T_F K_1 \quad \text{Eq. 1}$$

## 7.2 VOC Concentration of the Fugitive Emissions at Point j.

$$C_{Fj} = (C_j - C_{D0}) \frac{C_H - C_{D0}}{C_{DH} - C_{D0}} \quad \text{Eq. 2}$$

## 7.3 Background VOC Concentration at Point i.

$$C_{Bi} = (C_i - C_{D0}) \frac{C_H - C_{D0}}{C_{DH} - C_{D0}} \quad \text{Eq. 3}$$

## 7.4 Average Background Concentration.

$$C_B = \frac{\sum_{i=1}^n C_{Bi} A_i}{nA_N} \quad \text{Eq. 5}$$

NOTE: If the concentration at each point is within 20 percent of the average concentration of all points, the terms " $A_i$ " and " $A_N$ " may be deleted from Equation 4.



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## Procedure L - VOC Input

## 1. INTRODUCTION

1.1 Applicability. This procedure is applicable for determining the input of volatile organic compounds (VOC). It is intended to be used as a segment in the development of liquid/gas protocols for determining VOC capture efficiency (CE) for surface coating and printing operations.

1.2 Principle. The amount of VOC introduced to the process (L) is the sum of the products of the weight (W) of each VOC containing liquid (ink, paint, solvent, etc.) used and its VOC content (V). A sample of each VOC containing liquid is analyzed with a flame ionization analyzer (FIA) to determine V.

1.3 Estimated Measurement Uncertainty. The measurement uncertainties are estimated for each VOC containing liquid as follows:  $W = \pm 2.0$  percent and  $V = \pm 12.0$  percent. Based on these numbers, the probable uncertainty for L is estimated at about  $\pm 12.2$  percent for each VOC containing liquid.

1.4 Sampling Requirements. A capture efficiency test shall consist of at least three sampling runs. The sampling time for each run should be at least 8 hours, unless otherwise approved.

1.5 Notes. Because this procedure is often applied in highly explosive areas, caution and care should be exercised in choosing appropriate equipment and installing and using the equipment. Mention of trade names or company products does not constitute endorsement. All gas concentrations (percent, ppm) are by volume, unless otherwise noted.

## 2. APPARATUS AND REAGENTS

## 2.1 Liquid Weight.

2.1.1 Balances/Digital Scales. To weigh drums of VOC containing liquids to within 0.2 lb.

2.1.2 Volume Measurement Apparatus (Alternative). Volume meters, flow meters, density measurement equipment, etc., as needed to achieve same accuracy as direct weight measurements.

2.2 VOC Content (Flame Ionization Analyzer Technique). The liquid sample analysis system is shown in Figures 1 and 2. The

following equipment is required:

2.2.1 Sample Collection Can. An appropriately sized metal can to be used to collect VOC containing materials. The can must be constructed in such a way that it can be grounded to the coating container.

2.2.2 Needle Valves. To control gas flow.

2.2.3 Regulators. For carrier gas and calibration gas cylinders.

2.2.4 Tubing. Teflon or stainless steel tubing with diameters and lengths determined by connection requirements of equipment. The tubing between the sample oven outlet and the FIA shall be heated to maintain a temperature of  $120 \pm 5^\circ\text{C}$ .

2.2.5 Atmospheric Vent. A tee and 0- to 0.5-liter/min rotameter placed in the sampling line between the carrier gas cylinder and the VOC sample vessel to release the excess carrier gas. A toggle valve placed between the tee and the rotameter facilitates leak tests of the analysis system.

2.2.6 Thermometer. Capable of measuring the temperature of the hot water bath to within  $1^\circ\text{C}$ .

2.2.7 Sample Oven. Heated enclosure, containing calibration gas coil heaters, critical orifice, aspirator, and other liquid sample analysis components, capable of maintaining a temperature of  $120 \pm 5^\circ\text{C}$ .

2.2.8 Gas Coil Heaters. Sufficient lengths of stainless steel or Teflon tubing to allow zero and calibration gases to be heated to the sample oven temperature before entering the critical orifice or aspirator.

2.2.9 Water Bath. Capable of heating and maintaining a sample vessel temperature of  $100 \pm 5^\circ\text{C}$ .

2.2.10 Analytical Balance. To measure  $\pm 0.001$  g.

2.2.11 Disposable Syringes. 2-cc or 5-cc.

2.2.12 Sample Vessel. Glass, 40-ml septum vial. A separate vessel is needed for each sample.



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2.2.13 Rubber Stopper. Two-hole stopper to accommodate 3/2-mm (1/8-in.) Teflon tubing, appropriately sized to fit the opening of the sample vessel. The rubber stopper should be wrapped in Teflon tape to provide a tighter seal and to prevent any reaction of the sample with the rubber stopper. Alternatively, any leak-free closure fabricated of non-reactive materials and accommodating the necessary tubing fittings may be used.

2.2.14 Critical Orifices. Calibrated critical orifices capable of providing constant flow rates from 50 to 250 ml/min at known pressure drops. Sapphire orifice assemblies (available from O'Keefe Controls Company) and glass capillary tubing have been found to be adequate for this application.

2.2.15 Vacuum Gauge. 0- to 760-mm (0- to 30-in.) Hg U-Tube manometer or vacuum gauge.

2.2.16 Pressure Gauge. Bourdon gauge capable of measuring the maximum air pressure at the aspirator inlet (e.g., 100 psig).

2.2.17 Aspirator. A device capable of generating sufficient vacuum at the sample vessel to create critical flow through the calibrated orifice when sufficient air pressure is present at the aspirator inlet. The aspirator must also provide sufficient sample pressure to operate the FIA. The sample is also mixed with the dilution gas within the aspirator.

2.2.18 Soap Bubble Meter. Of an appropriate size to calibrate the critical orifices in the system.

2.2.19 Organic Concentration Analyzer. An FIA with a span value of 1.5 times the expected concentration as propane; however other span values may be used if it can be demonstrated that they would provide more accurate measurements. The system shall be capable of meeting or exceeding the following specifications:

2.2.19.1 Zero Drift. Less than  $\pm 3.0$  percent of the span value.

2.2.19.2 Calibration Drift. Less than  $\pm 3.0$  percent of span value.

2.2.19.3 Calibration Error. Less than  $\pm 5.0$  percent of the calibration gas value.

2.2.20 Integrator/Data Acquisition System. An analog or digital device or computerized data acquisition system used to integrate

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the FIA response or compute the average response and record measurement data. The minimum data sampling frequency for computing average or integrated values is one measurement value every 5 seconds. The device shall be capable of recording average values at least once per minute.

2.2.21 Chart Recorder (Optional). A chart recorder or similar device is recommended to provide a continuous analog display of the measurement results during the liquid sample analysis.

2.2.22 Calibration and Other Gases. For calibration, fuel, and combustion air (if required) contained in compressed gas cylinders. All calibration gases shall be traceable to NIST standards and shall be certified by the manufacturer to  $\pm 1$  percent of the tag value. Additionally, the manufacturer of the cylinder should provide a recommended shelf life for each calibration gas cylinder over which the concentration does not change more than  $\pm 2$  percent from the certified value. For calibration gas values not generally available, alternative methods for preparing calibration gas mixtures, such as dilution systems, may be used with prior approval.

2.2.22.1 Fuel. A 40 percent H<sub>2</sub>/60 percent He or 40 percent H<sub>2</sub>/60 percent N<sub>2</sub> gas mixture is recommended to avoid an oxygen synergism effect that reportedly occurs when oxygen concentration varies significantly from a mean value.

2.2.22.2 Carrier Gas. High purity air with less than 1 ppm of organic material (as propane) or less than 0.1 percent of the span value, whichever is greater.

2.2.22.3 FIA Linearity Calibration Gases. Low-, mid-, and high-range gas mixture standards with nominal propane concentrations of 20-30, 45-55, and 70-80 percent of the span value in air, respectively. Other calibration values and other span values may be used if it can be shown that more accurate measurements would be achieved.

2.2.22.4 System Calibration Gas. Gas mixture standard containing propane in air, approximating the undiluted VOC concentration expected for the liquid samples.

## 3. DETERMINATION OF LIQUID INPUT WEIGHT

3.1 Weight Difference. Determine the amount of material



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introduced to the process as the weight difference of the feed material before and after each sampling run. In determining the total VOC containing liquid usage, account for: (a) the initial (beginning) VOC containing liquid mixture; (b) any solvent added during the test run; (c) any coating added during the test run; and (d) any residual VOC containing liquid mixture remaining at the end of the sample run.

3.1.1 Identify all points where VOC containing liquids are introduced to the process. To obtain an accurate measurement of VOC containing liquids, start with an empty fountain (if applicable). After completing the run, drain the liquid in the fountain back into the liquid drum (if possible), and weigh the drum again. Weigh the VOC containing liquids to  $\pm 0.5$  percent of the total weight (full) or  $\pm 0.1$  percent of the total weight of VOC containing liquid used during the sample run, whichever is less. If the residual liquid cannot be returned to the drum, drain the fountain into a preweighed empty drum to determine the final weight of the liquid.

3.1.2 If it is not possible to measure a single representative mixture, then weigh the various components separately (e.g., if solvent is added during the sampling run, weigh the solvent before it is added to the mixture). If a fresh drum of VOC containing liquid is needed during the run, then weigh both the empty drum and fresh drum.

3.2 Volume Measurement (Alternative). If direct weight measurements are not feasible, the tester may use volume meters and flow rate meters (and density measurements) to determine the weight of liquids used if it can be demonstrated that the technique produces results equivalent to the direct weight measurements. If a single representative mixture cannot be measured, measure the components separately.

## 4. DETERMINATION OF VOC CONTENT IN INPUT LIQUIDS

## 4.1 Collection of Liquid Samples.

4.1.1 Collect a 100-ml or larger sample of the VOC containing liquid mixture at each application location at the beginning and end of each test run. A separate sample should be taken of each VOC containing liquid added to the application mixture during the test run. If a fresh drum is needed during the sampling run,

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then obtain a sample from the fresh drum.

4.1.2 When collecting the sample, ground the sample container to the coating drum. Fill the sample container as close to the rim as possible to minimize the amount of headspace.

4.1.3 After the sample is collected, seal the container so the sample cannot leak out or evaporate.

4.1.4 Label the container to identify clearly the contents.

## 4.2 Liquid Sample VOC Content.

4.2.1 Assemble the liquid VOC content analysis system as shown in Figure 1.

4.2.2 Permanently identify all of the critical orifices that may be used. Calibrate each critical orifice under the expected operating conditions (i.e., sample vacuum and temperature) against a volume meter as described in Section 5.3.

4.2.3 Label and tare the sample vessels (including the stoppers and caps) and the syringes.

4.2.4 Install an empty sample vessel and perform a leak test of the system. Close the carrier gas valve and atmospheric vent and evacuate the sample vessel to 250 mm (10 in.) Hg absolute or less using the aspirator. Close the toggle valve at the inlet to the aspirator and observe the vacuum for at least one minute. If there is any change in the sample pressure, release the vacuum, adjust or repair the apparatus as necessary and repeat the leak test.

4.2.5 Perform the analyzer calibration and linearity checks according to the procedure in Section 5.1. Record the responses to each of the calibration gases and the back-pressure setting of the FIA.

4.2.6 Establish the appropriate dilution ratio by adjusting the aspirator air supply or substituting critical orifices. Operate the aspirator at a vacuum of at least 25 mm (1 in.) Hg greater than the vacuum necessary to achieve critical flow. Select the dilution ratio so that the maximum response of the FIA to the sample does not exceed the high-range calibration gas.

4.2.7 Perform system calibration checks at two levels by



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introducing compressed gases at the inlet to the sample vessel while the aspirator and dilution devices are operating. Perform these checks using the carrier gas (zero concentration). Perform system calibration gas. If the response to the carrier gas exceeds  $\pm 0.5$  percent of span, clean or repair the apparatus and repeat the check. Adjust the dilution ratio as necessary to achieve the correct response to the upscale check, but do not adjust the analyzer calibration. Record the identification of the orifice, aspirator air supply pressure, FIA back-pressure, and the responses of the FIA to the carrier and system calibration gases.

4.2.8 After completing the above checks, inject the system calibration gas for approximately 10 minutes. Time the exact duration of the gas injection using a stopwatch. Determine the area under the FIA response curve and calculate the system response factor based on the sample gas flow rate, gas concentration, and the duration of the injection as compared to the integrated response using Equations 2 and 3.

4.2.9 Verify that the sample oven and sample line temperatures are  $120 \pm 5^\circ\text{C}$  and that the water bath temperature is  $100 \pm 5^\circ\text{C}$ .

4.2.10 Fill a tared syringe with approximately 1 g of the VOC containing liquid and weigh it. Transfer the liquid to a tared sample vessel. Plug the sample vessel to minimize sample loss. Weigh the sample vessel containing the liquid to determine the amount of sample actually received. Also, as a quality control check, weigh the empty syringe to determine the amount of material delivered. The two coating sample weights should agree within  $\pm 0.02$  g. If not, repeat the procedure until an acceptable sample is obtained.

4.2.11 Connect the vessel to the analysis system. Adjust the aspirator supply pressure to the correct value. Open the valve on the carrier gas supply to the sample vessel and adjust it to provide a slight excess flow to the atmospheric vent. As soon as the initial response of the FIA begins to decrease, immerse the sample vessel in the water bath. (Applying heat to the sample vessel too soon may cause the FID response to exceed the calibrated range of the instrument, and thus invalidate the analysis.)

4.2.12 Continuously measure and record the response of the FIA until all of the volatile material has been evaporated from the

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sample and the instrument response has returned to the baseline (i.e., response less than 0.5 percent of the span value). Observe the aspirator supply pressure, FIA back-pressure, atmospheric vent, and other system operating parameters during the run; repeat the analysis procedure if any of these parameters deviate from the values established during the system calibration checks in Section 4.2.7. After each sample perform the drift check described in Section 5.2. If the drift check results are acceptable, calculate the VOC content of the sample using the equations in Section 7. Integrate the area under the FIA response curve, determine the average concentration response and the duration of sample analysis.

## 5. CALIBRATION AND QUALITY ASSURANCE

5.1 FIA Calibration and Linearity Check. Make necessary adjustments to the air and fuel supplies for the FIA and ignite the burner. Allow the FIA to warm up for the period recommended by the manufacturer. Inject a calibration gas into the measurement system and adjust the back-pressure regulator to the value required to achieve the flow rates specified by the manufacturer. Inject the zero- and the high-range calibration gases and adjust the analyzer calibration to provide the proper responses. Inject the low- and mid-range gases and record the responses of the measurement system. The calibration and linearity of the system are acceptable if the responses for all four gases are within 5 percent of the respective gas values. If the performance of the system is not acceptable, repair or adjust the system and repeat the linearity check. Conduct a calibration and linearity check after assembling the analysis system and after a major change is made to the system.

5.2 Systems Drift Checks. After each sample, repeat the system calibration checks in Section 4.2.7 before any adjustments to the FIA or measurement system are made. If the zero or calibration drift exceeds  $\pm 3$  percent of the span value, discard the result and repeat the analysis.

## 5.3 Critical Orifice Calibration.

5.3.1 Each critical orifice must be calibrated at the specific operating conditions that it will be used. Therefore, assemble all components of the liquid sample analysis system as shown in Figure 3. A stopwatch is also required.



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5.3.2 Turn on the sample oven, sample line, and water bath heaters and allow the system to reach the proper operating temperature. Adjust the aspirator to a vacuum of 380 mm (15 in.) Hg vacuum. Measure the time required for one soap bubble to move a known distance and record barometric pressure.

5.3.3 Repeat the calibration procedure at a vacuum of 406 mm (16 in.) Hg and at 25-mm (1-in.) Hg intervals until three consecutive determinations provide the same flow rate. Calculate the critical flow rate for the orifice in ml/min at standard conditions. Record the vacuum necessary to achieve critical flow.

## 6. NOMENCLATURE

$A_L$  = area under the response curve of the liquid sample, area count.

$A_g$  = area under the response curve of the calibration gas, area count.

$C_s$  = actual concentration of system calibration gas, ppm propane.

$K = 1.830 \times 10^{-9}$  g/(ml-ppm).

$L$  = total VOC content of liquid input, kg.

$M_L$  = mass of liquid sample delivered to the sample vessel, g.

$q$  = flow rate through critical orifice, ml/min.

$RF$  = liquid analysis system response factor, g/area count.

$T_s$  = total gas injection time for system calibration gas during integrator calibration, min.

$V_{Fj}$  = final VOC fraction of VOC containing liquid j.

$V_{Ij}$  = initial VOC fraction of VOC containing liquid j.

$V_{Aj}$  = VOC fraction of VOC containing liquid j added during the run.

$V$  = VOC fraction of liquid sample.

$W_{Fj}$  = weight of VOC containing liquid j remaining at end of the run, kg.

$W_{Ij}$  = weight of VOC containing liquid j at beginning of the run, kg.

$W_{Aj}$  = weight of VOC containing liquid j added during the run, kg.

## 7. CALCULATIONS



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## 7.1 Total VOC Content of the Input VOC Containing Liquid.

$$L = \sum_{j=1}^n V_{Ij} W_{Ij} = \sum_{j=1}^n S V_{Fj} W_{Fj} + S \sum_{j=1}^n V_{Aj} W_{Aj} \quad \text{Eq. 1}$$

## 7.2 Liquid Sample Analysis System Response Factor for Systems Using Integrators, Grams/Area Counts.

$$RF = \frac{C_s}{A_s} \frac{Q}{T_s} \frac{K}{A_s} \quad \text{Eq. 2}$$

## 7.3 VOC Content of the Liquid Sample.

$$V = \frac{A_p RF}{M_L} \quad \text{Eq. 3}$$

Procedure T - Criteria for and Verification of a Permanent or Temporary Total Enclosure

## 1. INTRODUCTION

1.1 Applicability. This procedure is used to determine whether a permanent or temporary enclosure meets the criteria of a total enclosure.

1.2 Principle. An enclosure is evaluated against a set of criteria. If the criteria are met and if all the exhaust gases are ducted to a control device, then the volatile organic compounds (VOC) capture efficiency (CE) is assumed to be 100 percent and CE need not be measured. However, if part of the exhaust gas stream is not ducted to a control device, CE must be determined.

## 2. DEFINITIONS

2.1 Natural Draft Opening (NDO) -- Any permanent opening in the enclosure that remains open during operation of the facility and is not connected to a duct in which a fan is installed.

2.2 Permanent Total Enclosure (PTE) -- A permanently installed enclosure that completely surrounds a source of emissions such that all VOC emissions are captured and contained for discharge

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through a control device.

2.3 Temporary Total Enclosure (TTE) -- A temporarily installed enclosure that completely surrounds a source of emissions such that all VOC emissions are captured and contained for discharge through ducts that allow for the accurate measurement of VOC rates.

## 3. CRITERIA OF A TEMPORARY TOTAL ENCLOSURE

3.1 Any NDO shall be at least 4 equivalent opening diameters from each VOC emitting point.

3.2 Any exhaust point from the enclosure shall be at least 4 equivalent duct or hood diameters from each NDO.

3.3 The total area of all NDO's shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling.

3.4 The average facial velocity (FV) of air through all NDO's shall be at least 3,600 m/hr (200 fpm). The direction of air through all NDO's shall be into the enclosure.

3.5 All access doors and windows whose areas are not included in Section 3.3 and are not included in the calculation in Section 3.4 shall be closed during routine operation of the process.

## 4. CRITERIA OF A PERMANENT TOTAL ENCLOSURE

4.1 Same as Sections 3.1 and 3.3 - 3.5.

4.2 All VOC emissions must be captured and contained for discharge through a control device.

## 5. PROCEDURE

5.1 Determine the equivalent diameters of the NDO's and determine the distances from each VOC emitting point to all NDO's. Determine the equivalent diameter of each exhaust duct or hood and its distance to all NDO's. Calculate the distances in terms of equivalent diameters. The number of equivalent diameters shall be at least 4.

5.2 Measure the total area ( $A_t$ ) of the enclosure and the total



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area ( $A_N$ ) of all NDO's of the enclosure. Calculate the NDO to enclosure area ratio (NEAR) as follows:

$$\text{NEAR} = A_N/A_t$$

The NEAR must be  $< 0.05$ .

5.3 Measure the volumetric flow rate, corrected to standard conditions, of each gas stream exiting the enclosure through an exhaust duct or hood using EPA Method 2. In some cases (e.g., when the building is the enclosure), it may be necessary to measure the volumetric flow rate, corrected to standard conditions, of each gas stream entering the enclosure through a forced makeup air duct using Method 2. Calculate FV using the following equation:

$$FV = [Q_0 - Q_1]/A_N$$

where:

$Q_0$  = the sum of the volumetric flow from all gas streams exiting the enclosure through an exhaust duct or hood.

$Q_1$  = the sum of the volumetric flow from all gas streams into the enclosure through a forced makeup air duct; zero, if there is no forced makeup air into the enclosure.

$A_N$  = total area of all NDO's in enclosure.

The FV shall be at least 3,600 m/hr (200 fpm).

5.4 Verify that the direction of air flow through all NDO's is inward. Use streamers, smoke tubes, tracer gases, etc. Strips of plastic wrapping film have been found to be effective. Monitor the direction of air flow at intervals of at least 10 minutes for at least 1 hour.

## 6. QUALITY ASSURANCE

6.1 The success of this protocol lies in designing the TTE to simulate the conditions that exist without the TTE, i.e., the effect of the TTE on the normal flow patterns around the affected facility or the amount of fugitive VOC emissions should be

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minimal. The TTE must enclose the application stations, coating reservoirs, and all areas from the application station to the oven. The oven does not have to be enclosed if it is under negative pressure. The NDO's of the temporary enclosure and a fugitive exhaust fan must be properly sized and placed.

6.2. Estimate the ventilation rate of the TTE that best simulates the conditions that exist without the TTE, i.e., the effect of the TTE on the normal flow patterns around the affected facility or the amount of fugitive VOC emissions should be minimal. Figure 1 may be used as an aid. Measure the concentration ( $C_g$ ) and flow rate ( $Q_g$ ) of the captured gas stream, specify a safe concentration ( $C_p$ ) for the fugitive gas stream, estimate the CE, and then use the plot in Figure 1 to determine the volumetric flowrate of the fugitive gas stream ( $Q_F$ ). A fugitive VOC emission exhaust fan that has a variable flow control is desirable.

6.2.1 Monitor the concentration of VOC into the capture device without the TTE. To minimize the effect of temporal variation on the captured emissions, the baseline measurement should be made over as long a time period as practical. However, the process conditions must be the same for the measurement in Section 6.2.3 as they are for this baseline measurement. This may require short measuring times for this quality control check before and after the construction of the TTE.

6.2.2 After the TTE is constructed, monitor the VOC concentration inside the TTE. This concentration shall not continue to increase and must not exceed the safe level according to OSHA requirements for permissible exposure limits. An increase in VOC concentration indicates poor TTE design or poor capture efficiency.

6.2.3 Monitor the concentration of VOC into the capture device with the TTE. To limit the effect of the TTE on the process, the VOC concentration with and without the TTE must be within  $\pm 10$  percent. If the measurements do not agree, adjust the ventilation rate from the TTE until they agree within 10 percent.



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APPENDIX C  
REFERENCE METHODS AND PROCEDURES

Introduction

This Appendix presents the reference methods and procedures required for implementing Reasonably Available Control Technology (RACT). Methods and procedures are identified for two types of ACT implementation:

- a) Determination of VOC destruction efficiency for evaluating compliance with the 98 weight percent VOC reduction or 20 ppmv emission limit specified in Sections 215.520 through 215.527; and
- b) Determination of offgas flowrate, hourly emissions and stream net heating value for calculating TRE.

All reference methods identified in this Appendix refer to the reference methods specified at 40 CFR 60, Appendix A, incorporated by reference in Section 215.105.

VOC DESTRUCTION EFFICIENCY DETERMINATION

The following reference methods and procedures are required for determining compliance with the percent destruction efficiency specified in Sections 215.520 through 215.527.

- a) Reference Method 1 or 1A for selection of the sampling site. The control device inlet sampling site for determination of vent stream molar composition or total organic compound destruction efficiency shall be prior to the inlet of any control device and after all recovery devices.
- b) Reference Methods 2, 2A, 2C or 2D for determination of the volumetric flowrate.
- c) Reference Method 3 to measure oxygen concentration of the air dilution correction. The emission sample shall be corrected to 3 percent oxygen.
- d) Reference Method 18 to determine the concentration of total organic compounds (minus methane and ethane) in the control device outlet and total organic compound reduction efficiency of the control device.

TRE DETERMINATION

The following reference methods and procedures are required for determining the offgas flowrate, hourly emissions, and the net heating value of the gas combusted to calculate the vent stream TRE.

- a) Reference Method 1 or 1A for selection of the sampling site. The sampling site for the vent stream flowrate and molar composition determination prescribed in (b) and (c) shall be prior to the inlet of any combustion device, prior to any post-reactor dilution of the stream with air and prior to any post-reactor introduction of halogenated compounds into the vent stream. Subject to the preceding restrictions on the sampling site, it shall be after the final recovery device. If any gas stream other than the air oxidation vent stream is normally conducted through the recovery system of the affected facility, such stream shall be rerouted or turned off while the vent stream is sampled, but shall be routed normally prior to the measuring of the initial value of the monitored parameters for determining compliance with the recommended RACT. If the air oxidation vent stream is normally routed through any equipment which is not a part of the air oxidation process as defined in 35 Ill. Adm. Code 211.122, such equipment shall be bypassed by the vent stream while the vent stream is sampled, but shall not be bypassed during the measurement of the initial value of the monitored parameters for determining compliance with Subpart V.

- b) The molar composition of the vent stream shall be determined using the following methods:

- 1) Reference Method 18 to measure the concentration of all organics, including those containing halogens, unless a significant portion of the compounds of interest are polymeric (high molecular weight), can polymerize before analysis or have low vapor pressures, in which case Reference Method 25(a) shall be used.
- 2) ASTM D1946-67 (reapproved 1977), incorporated by reference in Section 215.105, to measure the concentration of carbon monoxide and hydrogen.
- 3) Reference Method 4 to measure the content of water vapor, if necessary.



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c) The volumetric flowrate shall be determined using Reference Method 2, 2A, 2C or 2D, as appropriate.

d) The net heating value of the vent stream shall be calculated using the following equation:

$$H = K \sum_{i=1}^n C_i H_i$$

Where:

H = Net heating value of the sample, MJ/scm, where the net enthalpy per mole of offgas is based on combustion at 25°C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20°C, as in the definition of F (vent stream flowrate) below.

K = Constant,  $1.740 \times 10^{-7}$  (1/ppm) (mole/scm) (MJ/kcal) where standard temperature for mole/scm is 20°C.

C<sub>i</sub> = Concentration of sample component i, reported on a wet basis, in ppm, as measured by Reference Method 18 or ASTM D1946-67 (reapproved 1977), incorporated by reference in Section 215.105.

H<sub>i</sub> = Net heat of combustion of sample component i, kcal/mole based on combustion at 25°C and 760 mm Hg. If published values are not available or cannot be calculated, the heats of combustion of vent stream components are required to be determined using ASTM D2382-76, incorporated by reference in Section 215.105.

e) The emission rate of total organic compounds in the process vent stream shall be calculated using the following equation:

$$E = K \sum_{i=1}^n F C_i M_i$$

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Where:

E = Emission rate of total organic compounds (minus methane and ethane) in the sample in kg/hr.

K = Constant  $2.494 \times 10^{-6}$  (1/ppm) (mole/scm) (kg/g) (min/hr), where standard temperature for (mole/scm) is 20°C.

M<sub>i</sub> = Molecular weight of sample component i (g/mole).

F = Vent stream flowrate (scm/min), at a standard temperature of 20°C.

f) The total vent stream concentration (by volume) of compounds containing halogens (ppmv, by compound) shall be summed from the individual concentrations of compounds containing halogens which were measured by Reference Method 18.



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## APPENDIX D

COEFFICIENTS FOR THE TOTAL RESOURCE  
EFFECTIVENESS INDEX (TRE) EQUATION

This Appendix contains values for the total resource effectiveness index (TRE) equation in Subpart V.

If a flow rate falls exactly on the boundary between the indicated ranges, the operator shall use the row in which the flow rate is maximum.

COEFFICIENTS FOR TRE EQUATION  
FOR CHLORINATED PROCESS VENT STREAMS WITH  
NET HEATING VALUE LESS THAN  
OR EQUAL TO 3.5 MJ/scmFLOW RATE  
(scm/min)

Min.	Max.	a	b	c	d	e	f
0.0	13.5	48.73	0.	0.404	-0.1632	0.	0.
13.5	700.	42.35	0.624	0.404	-0.1632	0.	0.0245
700.	1400.	84.38	0.678	0.404	-0.1632	0.	0.0346
1400.	2100.	126.41	0.712	0.404	-0.1632	0.	0.0424
2100.	2800.	168.44	0.747	0.404	-0.1632	0.	0.0490
2800.	3500.	210.47	0.758	0.404	-0.1632	0.	0.0548

COEFFICIENTS FOR TRE EQUATION  
FOR CHLORINATED PROCESS VENT STREAMS WITH  
NET HEATING VALUE GREATER THAN 3.5 MJ/scmFLOW RATE  
(scm/min)

Min.	Max.	a	b	c	d	e	f
0.	13.5	47.76	0.	-0.292	0.	0.	0.
13.5	700.	41.58	0.605	-0.292	0.	0.	0.0245
700.	1400.	82.84	0.658	-0.292	0.	0.	0.0346
1400.	2100.	123.10	0.691	-0.292	0.	0.	0.0424
2100.	2800.	165.36	0.715	-0.292	0.	0.	0.0490
2800.	3500.	206.62	0.734	-0.292	0.	0.	0.0548

COEFFICIENTS FOR TRE EQUATION  
FOR NONCHLORINATED PROCESS VENT STREAMS WITH  
NET HEATING VALUE LESS THAN  
OR EQUAL TO 0.48 MJ/scmFLOW RATE  
(scm/min)

Min.	Max.	a	b	c	d	e	f
0.	13.5	19.05	0.	0.113	-0.214	0.	0.
13.5	1350.	16.61	0.239	0.113	-0.214	0.	0.0245
1350.	2700.	32.91	0.260	0.113	-0.214	0.	0.0346
2700.	4050.	49.21	0.273	0.113	-0.214	0.	0.0424

COEFFICIENTS FOR TRE EQUATION FOR NONCHLORINATED  
PROCESS VENT STREAMS WITH NET HEATING VALUE  
GREATER THAN 0.48 AND LESS THAN OR  
EQUAL TO 1.9 MJ/scmFLOW RATE  
(scm/min)

Min.	Max.	a	b	c	d	e	f
0.	13.5	19.74	0.	0.400	-0.202	0.	0.
13.5	1350.	18.30	0.138	0.400	-0.202	0.	0.0245
1350.	2700.	36.28	0.150	0.400	-0.202	0.	0.0346
2700.	4050.	54.26	0.158	0.400	-0.202	0.	0.0424



COEFFICIENTS FOR TRE EQUATION FOR NONCHLORINATED  
PROCESS VENT STREAMS WITH NET HEATING VALUE  
GREATER THAN 1.9 AND LESS THAN OR  
EQUAL TO 3.6 MJ/scm

FLOW RATE (scm/min)		a		b		c		d		e		f	
Min.	Max.												
0	13.5	15.24	0.	0.033	0.	0.	0.	0.	0.	0.	0.	0.	0.
13.5	1190.	13.63	0.157	0.033	0.	0.	0.	0.	0.	0.	0.	0.0245	0.
1190.	2380.	26.95	0.171	0.033	0.	0.	0.	0.	0.	0.	0.	0.0346	0.
2380.	3570.	40.27	0.179	0.033	0.	0.	0.	0.	0.	0.	0.	0.0424	0.

COEFFICIENTS FOR TRE EQUATION  
FOR NONCHLORINATED PROCESS VENT STREAMS WITH  
NET HEATING VALUE GREATER THAN 3.6 MG/scm

FLOW RATE (scm/min)		a		b		c		d		e		f	
Min.	Max.												
0	13.5	15.24	0.	0.	0.0090	0.	0.	0.0090	0.	0.	0.	0.	0.
13.5	1190.	13.63	0.	0.	0.0090	0.0503	0.	0.0090	0.0503	0.	0.	0.0245	0.
1190.	2380.	26.95	0.	0.	0.0090	0.0546	0.	0.0090	0.0546	0.	0.	0.0346	0.
2380.	3570.	40.27	0.	0.	0.0090	0.0573	0.	0.0090	0.0573	0.	0.	0.0424	0.

1) The Heading of the Part: Organic Material Emission  
Standards and Limitations for the Metro East Area

2) Code Citation: 35 Ill. Adm. Code 219

Section Number:		Proposed Action:	
219.100		new section	
219.101		new section	
219.102		new section	
219.103		new section	
219.104		new section	
219.105		new section	
219.106		new section	
219.107		new section	
219.108		new section	
219.109		new section	
219.110		new section	
219.111		new section	
219.112		new section	
219.121		new section	
219.122		new section	
219.123		new section	
219.124		new section	
219.125		new section	
219.126		new section	
219.127		new section	
219.128		new section	
219.141		new section	
219.142		new section	
219.143		new section	
219.144		new section	
219.181		new section	
219.182		new section	
219.183		new section	
219.184		new section	
219.185		new section	
219.186		new section	
219.204		new section	
219.205		new section	
219.206		new section	
219.207		new section	
219.208		new section	
219.209		new section	
219.210		new section	
219.211		new section	
219.301		new section	



## POLLUTION CONTROL BOARD

## NOTICE OF PROPOSED RULES

219.302 new section  
219.303 new section  
219.304 new section  
219.401 new section  
219.402 new section  
219.403 new section  
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219.521 new section  
219.525 new section  
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219.541 new section  
219.561 new section  
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219.637 new section  
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219.881 new section  
219.883 new section  
219.886 new section  
219.920 new section  
219.923 new section  
219.926 new section  
219.927 new section



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- 219.928 new section
- 219.940 new section
- 219.943 new section
- 219.946 new section
- 219.947 new section
- 219.948 new section
- 219.960 new section
- 219.963 new section
- 219.966 new section
- 219.967 new section
- 219.968 new section
- 219.980 new section
- 219.983 new section
- 219.986 new section
- 219.987 new section
- 219.988 new section
- 219.990 new section
- 219.991 new section
- Appendix A new section
- Appendix B new section
- Appendix C new section
- Appendix D new section

4) Statutory Authority: Illinois Environmental Protection Act (Ill. Rev. Stat. 1989, ch. 111, pars. 1010, 1027, and 1028.2.)

5) A Complete Description of the Subjects and Issues Involved:  
The proposed rules (docket R91-8) are designed to control organic material emissions, in an effort to reduce the formation of the pollutant ozone in the atmosphere. The proposed rules seek to correct deficiencies in Illinois' state implementation plan (SIP) for ozone in the Metro-East area, and require the implementation of reasonably available control technology (RACT) for certain sources of volatile organic material (VOM). This rulemaking is required by the federal Clean Air Act Amendments of 1990. The Illinois Environmental Protection Agency has certified that this rulemaking is a "required rule" pursuant to Section 28.2 of the Environmental Protection Act (Ill. Rev. Stat. 1989, ch. 111 1/2, par. 1028.2, as amended by P.A. 86-1409, effective January 1, 1991), and the Board has accepted that certification.

6) Will this proposed rule replace an emergency rule currently in effect? No.

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- 7) Does this rulemaking contain an automatic repeal date?  
Yes ☒ No ☐  
If "yes," please specify the date: \_\_\_\_\_
- 8) Does this proposed (amendment, repealer) contain incorporations by reference? Yes.
- 9) Are there any other amendments pending on this Part? No.
- 10) Statement of Statewide Policy Objective (if applicable)?

These proposed rules do not create or enlarge a state mandate as defined in Section 3(b) of the State Mandates Act (Ill. Rev. Stat. 1989, ch. 85, par. 2203(b)).

11) Time, Place and Manner in which interested persons may comment on this proposed rulemaking:

Send written comments concerning this rulemaking within 45 days of publication in the Illinois Register to Dorothy M. Gunn, Clerk, Illinois Pollution Control Board, 100 West Randolph Street, Suite 11-500, Chicago, IL 60601. Please include the docket number of this rulemaking (R91-8) on all comments. Please send copies of all comments to:

Bonnie Eynon Dept. of Energy and Natural Resources 325 West Adams, Room 300 Springfield, IL 62706	Kathleen Bassi Illinois Environmental Protection Agency 2200 Churchill Road P.O. Box 19276 Springfield, IL 62794-9276
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Additionally, two public hearings have been scheduled on this proposal. Dates, times, and locations are:

Wednesday, April 10, 1991 9:30 a.m. Room 9-031 State of Illinois Center 100 W. Randolph St. Chicago, Illinois	Monday, April 15, 1991 9:30 a.m. 2nd Floor Courtroom City Hall 2000 Edison Granite City, Illinois
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Persons wishing to testify at either hearing should contact the hearing officer, Elizabeth Schroer Harvey, at 312/814-



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6921, for information on pre-filing requirements.

12) Initial Regulatory Flexibility Analysis (if applicable):

A) Date rule submitted to Business Assistance Office of the Department of Commerce and Community Affairs:  
March 4, 1991.

B) Types of small businesses affected:  
Businesses involved in the manufacturing, retail and wholesale trade, and service sectors.

C) Reporting, bookkeeping or other procedures required for compliance:  
The recordkeeping and reporting procedures required for compliance vary with the type of stationary source and are fully presented in the proposed rules.

D) Types of professional skills necessary for compliance:  
Engineering and technical training is required.

The full text of the proposed amendments begins on the next page:

POLLUTION CONTROL BOARD  
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TITLE 35: ENVIRONMENTAL PROTECTION  
SUBTITLE B: AIR POLLUTION  
CHAPTER I: POLLUTION CONTROL BOARD  
SUBCHAPTER C: EMISSIONS STANDARDS AND LIMITATIONS FOR STATIONARY SOURCES

PART 219  
ORGANIC MATERIAL EMISSION STANDARDS AND LIMITATIONS  
FOR THE METRO EAST AREA

SUBPART A: GENERAL PROVISIONS

Section	Introduction
219.100	Clean-up and Disposal Operations
219.101	Abbreviations and Conversion Factors
219.102	Applicability
219.103	Definitions
219.104	Test Methods and Procedures
219.105	Compliance Dates
219.106	Afterburners
219.107	Exemptions, Variations, and Alternative Means of Control or Compliance Determinations
219.108	Vapor Pressure of Volatile Organic Liquids
219.109	Vapor Pressure of Organic Material or Solvents
219.110	Vapor Pressure of Volatile Organic Material
219.111	Incorporations by Reference
219.112	

SUBPART B: ORGANIC EMISSIONS FROM STORAGE AND LOADING OPERATIONS

Section	Storage Containers
219.121	Loading Operations
219.122	Petroleum Liquid Storage Tanks
219.123	External Floating Roofs
219.124	Compliance Dates
219.125	Compliance Plan
219.126	Emissions Testing
219.127	Measurement of Seal Gaps
219.128	

SUBPART C: ORGANIC EMISSIONS FROM MISCELLANEOUS EQUIPMENT

Section	Separation Operations
219.141	Pumps and Compressors
219.142	Vapor Blowdown
219.143	Safety Relief Valves
219.144	

SUBPART E: SOLVENT CLEANING



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- Section  
219.181 Solvent Cleaning in General  
219.182 Cold Cleaning  
219.183 Open Top Vapor Degreasing  
219.184 Conveyorized Degreasing  
219.185 Compliance Schedule  
219.186 Test Methods
- SUBPART F: COATING OPERATIONS
- Section  
219.204 Emission Limitations for Manufacturing Plants  
219.205 Daily-Weighted Average Limitations  
219.206 Solids Basis Calculation  
219.207 Alternative Emission Limitations  
219.208 Exemptions from Emission Limitations  
219.209 Exemption from General Rule on Use of Organic Material  
219.210 Compliance Schedule  
219.211 Recordkeeping and Reporting

## SUBPART G: USE OF ORGANIC MATERIAL

- Section  
219.301 Use of Organic Material  
219.302 Alternative Standard  
219.303 Fuel Combustion Emission Sources  
219.304 Operations with Compliance Program

## SUBPART H: PRINTING AND PUBLISHING

- Section  
219.401 Flexographic and Rotogravure Printing  
219.402 Applicability  
219.403 Compliance Schedule  
219.404 Recordkeeping and Reporting  
219.405 Heatset Web Offset Lithographic Printing

## SUBPART Q: LEAKS FROM SYNTHETIC ORGANIC CHEMICAL AND POLYMER MANUFACTURING EQUIPMENT

- Section  
219.421 General Requirements  
219.422 Inspection Program Plan for Leaks  
219.423 Inspection Program for Leaks  
219.424 Repairing Leaks  
219.425 Recordkeeping for Leaks  
219.426 Report for Leaks  
219.427 Alternative Program for Leaks

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- 219.428 Open-ended Valves  
219.429 Standards for Control Devices  
219.430 Compliance Date

## SUBPART R: PETROLEUM REFINING AND RELATED INDUSTRIES; ASPHALT MATERIALS

- Section  
219.441 Petroleum Refinery Waste Gas Disposal  
219.442 Vacuum Producing Systems  
219.443 Wastewater (Oil/Water) Separator  
219.444 Process Unit Turnarounds  
219.445 Leaks: General Requirements  
219.446 Monitoring Program Plan for Leaks  
219.447 Monitoring Program for Leaks  
219.448 Recordkeeping for Leaks  
219.449 Reporting for Leaks  
219.450 Alternative Program for Leaks  
219.451 Sealing Device Requirements  
219.452 Compliance Schedule for Leaks  
219.453 Compliance Dates

## SUBPART S: RUBBER AND MISCELLANEOUS PLASTIC PRODUCTS

- Section  
219.461 Manufacture of Pneumatic Rubber Tires  
219.462 Green Tire Spraying Operations  
219.463 Alternative Emission Reduction Systems  
219.464 Emission Testing  
219.465 Compliance Dates  
219.466 Compliance Plan

## SUBPART T: PHARMACEUTICAL MANUFACTURING

- Section  
219.480 Applicability of Subpart T  
219.481 Control of Reactors, Distillation Units, Crystallizers, Centrifuges and Vacuum Dryers  
219.482 Control of Air Dryers, Production Equipment Exhaust Systems and Filters  
219.483 Material Storage and Transfer  
219.484 In-Process Tanks  
219.485 Leaks  
219.486 Other Emission Sources  
219.487 Testing  
219.488 Monitoring and Recordkeeping for Air Pollution Control Equipment  
219.489 Recordkeeping for Air Pollution Control Equipment

## SUBPART V: AIR OXIDATION PROCESSES



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Section  
219.521 Definitions  
219.525 Emission Limitations for Air Oxidation Processes  
219.526 Testing and Monitoring  
219.527 Compliance Date

## SUBPART W: AGRICULTURE

Section  
219.541 Pesticide Exception

## SUBPART X: CONSTRUCTION

Section  
219.561 Architectural Coatings  
219.562 Paving Operations  
219.563 Cutback Asphalt

## SUBPART Y: GASOLINE DISTRIBUTION

Section  
219.581 Bulk Gasoline Plants  
219.582 Bulk Gasoline Terminals  
219.583 Gasoline Dispensing Facilities  
219.584 Gasoline Delivery Vessels  
219.585 Gasoline Volatility Standards

## SUBPART Z: DRY CLEANERS

Section  
219.601 Perchloroethylene Dry Cleaners  
219.602 Exemptions  
219.603 Leaks  
219.604 Compliance Dates  
219.605 Compliance Plan  
219.606 Exception to Compliance Plan  
219.607 Standards for Petroleum Solvent Dry Cleaners  
219.608 Operating Practices for Petroleum Solvent Dry Cleaners  
219.609 Program for Inspection and Repair of Leaks  
219.610 Testing and Monitoring  
219.611 Exemption for Petroleum Solvent Dry Cleaners  
219.612 Compliance Dates  
219.613 Compliance Plan

## SUBPART AA: PAINT AND INK MANUFACTURING

Section  
219.620 Applicability  
219.621 Exemption for Waterbase Material and Heatset Offset Ink

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219.623 Permit Conditions  
219.624 Open-top Mills, Tanks, Vats or Vessels  
219.625 Grinding Mills  
219.626 Storage Tanks  
219.628 Leaks  
219.630 Clean Up  
219.636 Compliance Schedule  
219.637 Recordkeeping and Reporting

## SUBPART BB: POLYSTYRENE PLANTS

Section  
219.875 Applicability of Subpart BB  
219.877 Emissions Limitation at Polystyrene Plants  
219.879 Compliance Date  
219.881 Compliance Plan  
219.883 Special Requirements for Compliance Plan  
219.886 Emissions Testing

## SUBPART PP: MISCELLANEOUS FABRICATED PRODUCT MANUFACTURING PROCESSES

Section  
219.920 Applicability  
219.923 Permit Conditions  
219.926 Control Requirements  
219.927 Compliance Schedule  
219.928 Testing

## SUBPART QQ: MISCELLANEOUS FORMULATION MANUFACTURING PROCESSES

Section  
219.940 Applicability  
219.943 Permit Conditions  
219.946 Control Requirements  
219.947 Compliance Schedule  
219.948 Testing

## SUBPART RR: MISCELLANEOUS ORGANIC CHEMICAL MANUFACTURING PROCESSES

Section  
219.960 Applicability  
219.963 Permit Conditions  
219.966 Control Requirements  
219.967 Compliance Schedule  
219.968 Testing

## SUBPART TT: OTHER EMISSION SOURCES



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## Section

219.980 Applicability  
219.983 Permit Conditions  
219.986 Control Requirements  
219.987 Compliance Schedule  
219.988 Testing

## SUBPART UU: RECORDKEEPING AND REPORTING FOR NON-CTG SOURCES

## Section

219.990 Exempt Emission Sources  
219.991 Subject Emission Sources

## Appendix A: List of Chemicals Defining Synthetic Organic Chemical and Polymer Manufacturing

## Appendix B: VOM Measurement Techniques for Capture Efficiency

## Appendix C: Reference Methods and Procedures

## Appendix D: Coefficients for the Total Resource Effectiveness Index (TRE) Equation

AUTHORITY: Implementing Section 10 and authorized by Section 28.2 of the Environmental Protection Act (Ill. Rev. Stat. 1989, ch. 111 1/2, pars. 1010 and 1028.2).

SOURCE: Adopted at \_\_\_\_ Ill. Reg. \_\_\_\_, effective \_\_\_\_.

## SUBPART A: GENERAL PROVISIONS

## Section 219.100 Introduction

a) This Part contains standards and limitations for emissions of organic material from stationary sources located in the Metro East area, which is comprised of Madison, Monroe, and St. Clair Counties.

b) Sources subject to this Part may be subject to the following:

- 1) Permits required under 35 Ill. Adm. Code 201;
- 2) Air quality standards under 35 Ill. Adm. Code 243;

c) This Part is divided into Subparts which are grouped as follows:

- 1) Subpart A: General Provisions
- 2) Subparts B-F: Emissions from equipment and operations in common to more than one industry;
- 3) Subpart G: Emissions from use of organic material;

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4) Subparts H-end: Special rules for various industry groups.

## Section 219.101 Cleanup and Disposal Operation

Emission of organic material released during clean-up operations and disposal shall be included with other emissions of organic material from the related emission source or air pollution control equipment in determining total emissions.

## Section 219.102 Abbreviations and Conversion Factors

a) The following abbreviations are used in this Part:

ASTM	American Society for Testing and Materials
bbl	barrels (42 gallons)
°C	degrees Celsius or centigrade
cm	centimeters
cu in.	cubic inches
°F	degrees Fahrenheit
FIP	Federal Implementation Plan
ft	feet
ft <sup>2</sup>	square feet
g	grams
gpm	gallons per minute
g/mole	grams per mole
gal	gallons
hr	hours
in	inches
°K	degrees Kelvin
kcal	kilocalories
kg	kilograms
kg/hr	kilograms per hour
kPa	kilopascals; one thousand newtons per square meter
l	liters
l/sec	liters per second
lbs	pounds
lbs/hr	pounds per hour
lbs/gal	pounds per gallon
LEL	lower explosive limit
m	meters
m <sup>2</sup>	square meters
m <sup>3</sup>	cubic meters
mg	milligrams
Mg	Megagrams, metric tons or tonnes
ml	milliliters
min	minutes
MJ	megajoules
mm Hg	millimeters of mercury



b) The provisions of this Part specifically applicable to each appellant who appealed the FIP for the Chicago area shall become effective sixty days after a final decision of that appellant's appeal by the federal appellate court; provided, however, that if the provisions of the FIP applicable to that party are voided or made ineffective by a federal court, the corresponding provisions in this proceeding shall not become effective.

Section 219.104 Definitions

The following terms are defined for the purpose of this Part.

"Accelacota" means a pharmaceutical coating operation which consists of a horizontally rotating perforated drum in which tablets are placed, a coating is applied by spraying, and the coating is dried by the flow of air across the drum through the perforations.

"Accumulator" means the reservoir of a condensing unit receiving the condensate from a surface condenser.

"Acid Gases" means for the purposes of Section 9.4 of the Environmental Protection Act (the Act) (Ill. Rev. Stat. 1987, ch. 111 1/2, par. 1009.4), hydrogen chloride, hydrogen fluoride and hydrogen bromide, which exist as gases, liquid mist, or any combination thereof.

"Actual emissions" means the actual quantity of VOM emissions from an emission source during a particular time period.

"Actual Heat Input" means the quantity of heat produced by the combustion of fuel using the gross heating value of the fuel.

"Adhesive" means any substance or mixture of substances intended to serve as a joining compound.

"Afterburner" means a control device in which materials in gaseous effluent are combusted.

"Air contaminant" means any solid, liquid, or gaseous matter, any odor, or any form of energy, that is capable of being released into the atmosphere from an emission source.

"Air dried coatings" means any coatings that dry by use of air or forced air at temperatures up to 363.15 K (194°F).

"Air pollution" means the presence in the atmosphere of one or more air contaminants in sufficient quantities and of such characteristics and duration as to be injurious to human, plant, or animal life, to

ppm parts per million  
ppmv parts per million by volume  
psi pounds per square inch absolute  
psia pounds per square inch gauge  
psig pounds per square inch gauge  
scf standard cubic feet  
scm standard cubic meters  
sec seconds  
SIP State Implementation Plan  
TTE temporary total enclosure  
sq cm square centimeters  
sq in square inches  
T English ton  
ton English ton  
USEPA United States Environmental Protection Agency  
VOC volatile organic compounds  
VOL volatile organic liquids  
VOM volatile organic materials

b) The following conversion factors are used in this Part.

English	Metric
1 gal	3.785 l
1,000 gal	3,785 l or 3.785 m <sup>3</sup>
1 psia	6.897 kPa (51.71 mm Hg)
2,205 lbs	1 kg
1 bbl	159.0 l
1 cu in	16.39 ml
1 lb/gal	119,800 mg/l
1 ton	0.907 Mg
1 T	0.907 Mg

Section 219.103 Applicability

The provisions of this Part shall apply to all sources located in Madison, Monroe, and St. Clair County.

a) The provisions of this Part shall become effective sixty days after a final decision by the federal appellate court of the general appeal (Illinois Environmental Regulatory Group v. USEPA, No. 90-2778 (and consolidated cases) (7th Cir.)) of the federal implementation plan (FIP) for the Chicago area promulgated by the U.S. Environmental Protection Agency (55 Fed. Reg. 26184, June 29, 1990; 55 Fed. Reg. 31981, August 6, 1990; 55 Fed. Reg. 39774, September 28, 1990), provided, however, that if a provision of the FIP is voided or made ineffective by a federal court, the corresponding provision in this proceeding shall not become effective.



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health, or to property, or to unreasonably interfere with the enjoyment of life or property.

"Air pollution control equipment" means any equipment or facility of a type intended to eliminate, prevent, reduce or control the emission of specified air contaminants to the atmosphere.

"Air suspension coater/dryer" means a pharmaceutical coating operation which consists of vertical chambers in which tablets or particles are placed, and a coating is applied and then dried while the tablets or particles are kept in a fluidized state by the passage of air upward through the chambers.

"Airless spray" means a spray coating method in which the coating is atomized by forcing it through a small opening at high pressure. The coating liquid is not mixed with air before exiting from the nozzle.

"Air-assisted airless spray" means a spray coating method which combines compressed air with hydraulic pressure to atomize the coating material into finer droplets than is achieved with pure airless spray. Lower hydraulic pressure is used than with airless spray.

"Allowable emissions" means the quantity of VOM emissions during a particular time period from a stationary source calculated using the maximum rated capacity of the source (unless restricted by federally enforceable limitations on operating rate, hours of operation, or both) and the most stringent of: the applicable standards in 40 CFR Parts 60 and 61; the applicable implementation plan; or a federally enforceable permit.

"Ambient air quality standards" means those standards designed to protect the public health and welfare codified in 40 CFR Part 50 and promulgated from time to time by the USEPA pursuant to authority contained in Section 108 of the Clean Air Act, 42 U.S.C. 7401 et seq., as amended from time to time.

"Applicator" means a device used in a coating line to apply coating.

"As applied" means the exact formulation of a coating during application on or impregnation into a substrate.

"Architectural Coating" means any coating used for residential or commercial buildings or their appurtenances, or for industrial buildings, which is site applied.

"Asphalt" means the dark-brown to black cementitious material (solid, semisolid, or liquid in consistency) of which the main constituents

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are bitumens which occur naturally or as a residue of petroleum refining.

"Asphalt Prime Coat" means a low-viscosity liquid asphalt applied to an absorbent surface as the first of more than one asphalt coat.

"Automobile" means a motor vehicle capable of carrying no more than 12 passengers.

"Automobile or light-duty truck assembly plant" means a facility where parts are assembled or finished for eventual inclusion into a finished automobile or light-duty truck ready for sale to vehicle dealers, but not including customizers, body shops, and other repairers.

"Automobile or light-duty truck refinishing" means the repainting of used automobiles and light-duty trucks.

"Baked coatings" means any coating which is cured or dried in an oven where the oven air temperature exceeds 90°C (194°F).

"Batch Loading" means the process of loading a number of individual parts at the same time for degreasing.

"Bead-Dipping" means the dipping of an assembled tire bead into a solvent-based cement.

"Binders" means organic materials and resins which do not contain VOM.

"Bituminous coatings" means black or brownish coating materials which are soluble in carbon disulfide, which consist mainly of hydrocarbons, and which are obtained from natural deposits or as residues from the distillation of crude oils or of low grades of coal.

"British Thermal Unit" means the quantity of heat required to raise one pound of water from 60°F to 61°F (abbreviated btu).

"Brush or wipe coating" means a manual method of applying a coating using a brush, cloth, or similar object.

"Bulk gasoline plant" means a gasoline storage and distribution facility with an average throughput of 76,000 l (20,000 gal) or less on a 30-day rolling average that distributes gasoline to gasoline dispensing facilities.

"Bulk Gasoline Terminal" means any gasoline storage and distribution facility that receives gasoline by pipeline, ship or barge, and distributes gasoline to bulk gasoline plants or gasoline dispensing facilities.



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"Can" means any metal container, with or without a top, cover, spout or handles, into which solid or liquid materials are packaged.

"Can coating" means any coating applied on a single walled container that is manufactured from metal sheets thinner than 29 gauge (0.0141 in.).

"Can coating facility" means a facility that includes one or more can coating line(s).

"Can coating line" means a coating line in which any protective, decorative, or functional coating is applied onto the surface of cans or can components.

"Capture" means the containment or recovery of emissions from a process for direction into a duct which may be exhausted through a stack or vent to a control device. The overall abatement of emissions from a process with an add-on control device is a function both of the capture efficiency and of the control device.

"Capture device" means a hood, enclosed room floor sweep or other means of collecting solvent or other pollutants into a duct. The pollutant can then be directed to a pollution control device such as an afterburner or carbon adsorber. Sometimes the term is used loosely to include the control device.

"Capture efficiency" means the fraction of all VOM generated by a process that are directed to an abatement or recovery device.

"Capture system" means all equipment (including, but not limited to, hoods, ducts, fans, ovens, dryers, etc.) used to contain, collect and transport an air pollutant to a control device.

"Clean Air Act" means the Clean Air Act of 1963, as amended, including the Clean Air Act Amendments of 1977, (42 U.S.C. 7401 et seq.), and the Clean Air Act Amendments of 1990, (P.A. 101549).

"Clear coating" means coatings that lack color and opacity or are transparent using the undercoat as a reflectant base or undertone color.

"Clear topcoat" means the final coating which contains binders, but not opaque pigments, and is specifically formulated to form a transparent or translucent solid protective film.

"Closed Purge System" means a system that is not open to the atmosphere and that is composed of piping, connections, and, if necessary, flow inducing devices that transport liquid or vapor from

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a piece or pieces of equipment to a control device, or return the liquid or vapor to the process line.

"Closed vent system" means a system that is not open to the atmosphere and is composed of piping, connections, and, if necessary, flow inducing devices that transport gas or vapor from an emission source to a control device.

"Coating" means a material applied onto or impregnated into a substrate for protective, decorative, or functional purposes. Such materials include, but are not limited to, paints, varnishes, sealers, adhesives, thinners, diluents, and inks.

"Coating applicator" means equipment used to apply a coating.

"Coating line" means an operation consisting of a series of one or more coating applicators and any associated flash-off areas, drying areas, and ovens wherein a surface coating is applied, dried, or cured. (It is not necessary for an operation to have an oven, or flash-off area, or drying area to be included in this definition.)

"Coating plant" means any plant that contains one or more coating line(s).

"Coil" means any flat metal sheet or strip that is rolled or wound in concentric rings.

"Coil coating" means any coating applied on any flat metal sheet or strip that comes in rolls or coils.

"Coil coating facility" means a facility that includes one or more coil coating line(s).

"Coil coating line" means a coating line in which any protective, decorative or functional coating is applied onto the surface of flat metal sheets, strips, rolls, or coils for industrial or commercial use.

"Cold cleaning" means the process of cleaning and removing soils from surfaces by spraying, brushing, flushing, or immersion while maintaining the organic solvent below its boiling point. Wipe cleaning is not included in this definition.

"Complete Combustion" means a process in which all carbon contained in a fuel or gas stream is converted to carbon dioxide.

"Component" means, with respect to synthetic organic chemical and polymer manufacturing equipment, and petroleum refining and related



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industries, any piece of equipment which has the potential to leak VOM including, but not limited to, pump seals, compressor seals, seal oil degassing vents, pipeline valves, pressure relief devices, process drains, and open ended pipes. This definition excludes valves which are not externally regulated, flanges, and equipment in heavy liquid service. For purposes of Subpart Q of this Part, this definition also excludes bleed ports of gear pumps in polymer service.

"Concrete curing compounds" means any coating applied to freshly poured concrete to retard the evaporation of water.

"Condensate" means volatile organic liquid separated from its associated gases, which condenses due to changes in the temperature or pressure and remains liquid at standard conditions.

"Continuous process" means, with respect to polystyrene resin, a method of manufacture in which the styrene raw material is delivered on a continuous basis to the reactor in which the styrene is polymerized to polystyrene.

"Control device" means equipment (such as an afterburner or adsorber) used to remove or prevent the emission of air pollutants from a contaminated exhaust stream.

"Control device efficiency" means the ratio of the pollution prevented by a control device and the pollution introduced to the control device, expressed as a percentage.

"Conveyorized degreasing" means the continuous process of cleaning and removing soils from surfaces utilizing either cold or vaporized solvents.

"Crude oil" means a naturally occurring mixture which consists of hydrocarbons and sulfur, nitrogen, or oxygen derivatives of hydrocarbons and which is a liquid at standard conditions.

"Crude oil gathering" means the transportation of crude oil or condensate after custody transfer between a production facility and a reception point.

"Custody transfer" means the transfer of produced petroleum and/or condensate after processing and/or treating in the producing operations, from storage tanks or automatic transfer facilities to pipelines or any other forms of transportation.

"Cutback Asphalt" means any asphalt which has been liquified by blending with petroleum solvents other than residual fuel oil and has not been emulsified with water.

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"Daily-weighted average VOM content" means the average VOM content of two or more coatings as applied on a coating line during any day, taking into account the fraction of total coating volume that each coating represents, as calculated with the following equation:

$$VOM_w = \left[ \sum_{i=1}^n V_i C_i \right] / V_T$$

where:

$VOM_w$  = The average VOM content of two or more coatings as applied each day on a coating line in units of kg VOM/l (lbs VOM/gal) of coating (minus water and any compounds which are specifically exempted from the definition of VOM).

$n$  = The number of different coatings as applied each day on a coating line.

$V_i$  = The volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on a coating line in units of l (gal).

$C_i$  = The VOM content of each coating as applied each day on a coating line in units of kg VOM/l (lbs VOM/gal) of coating (minus water and any compounds which are specifically exempted from the definition of VOM), and

$V_T$  = The total volume of all coatings (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on a coating line in units of l (gal).

"Day" means the consecutive 24 hours beginning at 12:00 AM (midnight) local time.

"Degreaser" means any equipment or system used in solvent cleaning.

"Delivery vessel" means any tank truck or trailer equipped with a storage tank that is used for the transport of gasoline to a stationary storage tank at a gasoline dispensing facility, bulk gasoline plant, or bulk gasoline terminal.

"Dip coating" means a method of applying coatings in which the part is submerged in a tank filled with the coating.



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"Distillate Fuel Oil" means fuel oils of grade No. 1 or 2 as specified in detailed requirements for fuel oil ASTM D-369-69 (1971).

"Dry Cleaning Facility" means a facility engaged in the cleaning of fabrics using an essentially nonaqueous solvent by means of one or more solvent washes, extraction of excess solvent by spinning and drying by tumbling in an airstream. The facility includes, but is not limited to, washers, dryers, filter and purification systems, waste disposal systems, holding tanks, pumps and attendant piping and valves.

"Effluent Water Separator" means any tank, box, sump or other apparatus in which any organic material floating on or entrained or contained in water entering such tank, box, sump or other apparatus is physically separated and removed from such water prior to outfall, drainage or recovery of such water.

"Electrostatic bell or disc spray" means an electrostatic spray coating method in which a rapidly-spinning bell- or disc-shaped applicator is used to create a fine mist and apply the coating with high transfer efficiency.

"Electrostatic spray" means a spray coating method in which opposite electrical charges are applied to the substrate and the coating. The coating is attracted to the object due to the electrostatic potential between them.

"Emission Rate" means total quantity of any air contaminant discharge into the atmosphere in any one-hour period.

"Emission source" and "source" mean any facility from which VOM is emitted or capable of being emitted into the atmosphere.

"Enamel" means a coating that cures by chemical cross-linking of its base resin. Enamels can be distinguished from lacquers because enamels are not readily resolvable in their original solvent.

"Enclose" means to cover any VOL surface that is exposed to the atmosphere.

"End sealing compound coat" means a compound applied to can ends which functions as a gasket when the end is assembled onto the can.

"Excess Air" means air supplied in addition to the theoretical quantity necessary for complete combustion of all fuel and/or combustible waste material.

"Excessive release" means a discharge of more than 295 g (0.65 lbs)

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of mercaptans and/or hydrogen sulfide into the atmosphere in any 5-minute period.

"Exterior base coat" means a coating applied to the exterior of a can body, or flat sheet to provide protection to the metal or to provide background for any lithographic or printing operation.

"Exterior end coat" means a coating applied to the exterior end of a can to provide protection to the metal.

"External-floating roof" means a cover over an open top storage tank consisting of a double deck or pontoon single deck which rests upon and is supported by the volatile organic liquid being contained and is equipped with a closure seal or seals to close the space between the roof edge and tank shell.

"Extreme environmental conditions" means exposure to any or all of the following: ambient weather conditions; temperatures consistently above 95°C (203°F); detergents; abrasive and scouring agents; solvents; or corrosive atmospheres.

"Extreme performance coating" means any coating which during intended use is exposed to extreme environmental conditions.

"Fabric coating" means any coating applied on textile fabric. Fabric coating includes the application of coatings by impregnation.

"Fabric coating facility" means a facility that includes one or more fabric coating lines.

"Fabric coating line" means a coating line in which any protective, decorative, or functional coating or reinforcing material is applied on or impregnated into a textile fabric.

"Federally enforceable" means all limitations and conditions which are enforceable by the Administrator including those requirements developed pursuant to 40 CFR Parts 60 and 61; requirements within any applicable implementation plan; and any permit requirements established pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Part 51 Subpart I and 40 CFR 51.166.

"Final repair coat" means the repainting of any topcoat which is damaged during vehicle assembly.

"Firebox" means the chamber or compartment of a boiler or furnace in which materials are burned, but not the combustion chamber or afterburner of an incinerator.



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- "Fixed-roof tank" means a cylindrical shell with a permanently affixed roof.
- "Flexographic printing" means the application of words, designs, and pictures to a substrate by means of a roll printing technique in which the pattern to be applied is raised above the printing roll and the image carrier is made of elastomeric materials.
- "Flexographic printing line" means a printing line in which each roll printer uses a roll with raised areas for applying an image such as words, designs, or pictures to a substrate. The image carrier on the roll is made of rubber or other elastomeric material.
- "Floating roof" means a roof on a stationary tank, reservoir, or other container which moves vertically upon change in volume of the stored material.
- "Fountain solution" means the solution which is applied to the image plate to maintain hydrophilic properties of the non-image areas.
- "Freeboard Height" means for open top vapor degreasers, the distance from the top of the vapor zone to the top of the degreaser tank. For cold cleaning degreasers, the distance from the solvent to the top of the degreaser tank.
- "Fuel combustion emission source" means any furnace, boiler, or similar equipment used for the primary purpose of producing heat or power by indirect heat transfer.
- "Fuel gas system" means a system for collection of refinery fuel gas including, but not limited to, piping for collecting tail gas from various process units, mixing drums and controls, and distribution piping.
- "Gas service" means that the component contains process fluid that is in the gaseous state at operating conditions.
- "Gas/gas method" means either of two methods for determining capture which rely only on gas phase measurements. The first method requires construction of a temporary total enclosure (TTE) to ensure that all would-be fugitive emissions are measured. The second method uses the building or room which houses the facility as an enclosure. The second method requires that all other VOM sources within the room be shut down while the test is performed, but all fans and blowers within the room must be operated according to normal procedures.
- "Gasoline" means any petroleum distillate or petroleum distillate/alcohol blend having a Reid vapor pressure of 27.6 kPa or greater which is used as a fuel for internal combustion engines.

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- "Gasoline dispensing facility" means any site where gasoline is transferred from a stationary storage tank to a motor vehicle gasoline tank used to provide fuel to the engine of that motor vehicle.
- "Green Tire Spraying" means the spraying of green tires, both inside and outside, with release compounds which help remove air from the tire during molding and prevent the tire from sticking to the mold after curing.
- "Green Tires" means assembled tires before molding and curing have occurred.
- "Gross vehicle weight" means the manufacturer's gross weight rating for the individual vehicle.
- "Gross vehicle weight rating" means the value specified by the manufacturer as the maximum design loaded weight of a single vehicle.
- "Heated airless spray" means an airless spray coating method in which the coating is heated just prior to application.
- "Heatset" means a class of web-offset lithography which requires a heated dryer to solidify the printing inks.
- "Heatset-web-offset lithographic printing line" means a lithographic printing line in which a blanket cylinder is used to transfer ink from a plate cylinder to a substrate continuously fed from a roll or an extension process and an oven is used to solidify the printing inks.
- "Heavy liquid" means liquid with a true vapor pressure of less than 0.3 kPa (0.04 psi) at 294.3°K (70°F) established in a standard reference text or as determined by ASTM method D2879-86 (incorporated by reference in Section 219.112); or which has 0.1 Reid Vapor Pressure as determined by ASTM method D323-82 (incorporated by reference in Section 219.112); or which when distilled requires a temperature of 421.95°K (300°F) or greater to recover 10 percent of the liquid as determined by ASTM method D86-82 (incorporated by reference in Section 219.112).
- "Heavy off-highway vehicle products" means, for the purpose of Subpart F of this Part, heavy construction, mining, farming, or material handling equipment; heavy industrial engines; diesel-electric locomotives and associated power generation equipment; and the components of such equipment or engines.
- "Heavy off-highway vehicle products coating facility" means a



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facility that includes one or more heavy off-highway vehicle products coating line(s).

"Heavy off-highway vehicle products coating line" means a coating line in which any protective, decorative, or functional coating is applied onto the surface of heavy off-highway vehicle products.

"High temperature aluminum coating" means a coating that is certified to withstand a temperature of 537.8°C (1000°F) for 24 hours.

"Hood" means a partial enclosure or canopy for capturing and exhausting, by means of a draft, the organic vapors or other fumes rising from a coating process or other source.

"Hood capture efficiency" means the emissions from a process which are captured by the hood and directed into a control device, expressed as a percentage of all emissions.

"Hot well" means the reservoir of a condensing unit receiving the condensate from a barometric condenser.

"Hour" means a block period of 60 minutes (e.g., 1:00am to 2:00am).

"In-process tank" means a container used for mixing, blending, heating, reacting, holding, crystallizing, evaporating or cleaning operations in the manufacture of pharmaceuticals.

"In-situ Sampling Systems" means nonextractive samplers or in-line samplers.

"In vacuum service" means, for the purpose of Subpart Q of this Part, equipment which is operating at an internal pressure that is at least 5 kPa (0.73 psia) below ambient pressure.

"Incinerator" means a combustion apparatus in which refuse is burned.

"Indirect heat transfer" means transfer of heat in such a way that the source of heat does not come into direct contact with process materials.

"Ink" means a coating used in printing, impressing, or transferring an image onto a substrate.

"Interior body spray coat" means a coating applied by spray to the interior of a can body.

"Internal-floating roof" means a cover or roof in a fixed-roof tank which rests upon and is supported by the volatile organic liquid

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being contained and is equipped with a closure seal or seals to close the space between the roof edge and tank shell.

"Lacquers" means any clear wood finishes formulated with nitrocellulose or synthetic resins to dry by evaporation without chemical reaction, including clear lacquer sanding sealers.

"Large appliance" means any residential and commercial washers, dryers, ranges, refrigerators, freezers, water heaters, dishwashers, trash compactors, air conditioners, and other similar products.

"Large appliance coating" means any coating applied to the component metal parts (including, but not limited to, doors, cases, lids, panels, and interior support parts) of residential and commercial washers, dryers, ranges, refrigerators, freezers, water heaters, dish washers, trash compactors, air conditioners, and other similar products.

"Large appliance coating facility" means a facility that includes one or more large appliance coating line(s).

"Large appliance coating line" means a coating line in which any protective, decorative, or functional coating is applied onto the surface of large appliances.

"Light liquid" means VOM in the liquid state which is not defined as heavy liquid.

"Light-duty truck" means any motor vehicle rated at 3,850 kg gross vehicle weight or less, designed mainly to transport property.

"Liquid/gas method" means either of two methods for determining capture which require both gas phase and liquid phase measurements and analysis. The first method requires construction of a TTE. The second method uses the building or room which houses the facility as an enclosure. The second method requires that all other VOM sources within the room be shut down while the test is performed, but all fans and blowers within the room must be operated according to normal procedures.

"Liquid-Mounted Seal" means a primary seal mounted in continuous contact with the liquid between the tank wall and the floating roof edge around the circumference of the roof.

"Liquid service" means that the equipment or component contains process fluid that is in a liquid state at operating conditions.

"Liquids Dripping" means any visible leaking from a seal including spraying, misting, clouding and ice formation.



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"Lithographic printing line" means a printing line, except that the substrate is not necessarily fed from an unwinding roll, in which each roll printer uses a roll where both the image and non-image areas are essentially in the same plane (planographic).

"Low Solvent Coating" means a coating which contains less organic solvent than the conventional coatings used by the industry. Low solvent coatings include water-borne, higher solids, electro-deposition and powder coatings.

"Magnet wire" means aluminum or copper wire formed into an electromagnet coil.

"Magnet wire coating" means any coating or electrically insulating varnish or enamel applied to magnet wire.

"Magnet wire coating facility" means a facility that includes one or more magnet wire coating line(s).

"Magnet wire coating line" means a coating line in which any protective, decorative, or functional coating is applied onto the surface of a magnet wire.

"Malfunction" means any sudden and unavoidable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation, or any other preventable upset condition or preventable equipment breakdown shall not be considered malfunctions.

"Manufacturing process" means a method whereby a process emission source or series of process emission sources is used to convert raw materials, feed stocks, subassemblies, or other components into a product, either for sale or for use as a component in a subsequent manufacturing process.

"Material Recovery Section" means any equipment designed to transport and recover styrene monomer and other impurities from other products and by-products in a polystyrene plant, including but not limited to the styrene devolatilizer unit and styrene recovery unit.

"Maximum theoretical emissions" means the quantity of volatile organic material emissions that theoretically could be emitted by a stationary source before add-on controls based on the design capacity or maximum production capacity of the source and 8760 hours per year. The design capacity or maximum production capacity includes use of coating(s) or ink(s) with the highest volatile organic material content actually used in practice by the source.

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"Metal furniture" means a furniture piece including, but not limited to, tables, chairs, waste baskets, beds, desks, lockers, benches, shelving, file cabinets, lamps, and room dividers.

"Metal furniture coating" means any non-adhesive coating applied to any furniture piece made of metal or any metal part which is or will be assembled with other metal, wood, fabric, plastic or glass parts to form a furniture piece including, but not limited to, tables, chairs, waste baskets, beds, desks, lockers, benches, shelving, file cabinets, lamps, and room dividers. This definition shall not apply to any coating line coating miscellaneous metal parts or products.

"Metal furniture coating facility" means a facility that includes one or more metal furniture coating line(s).

"Metal furniture coating line" means a coating line in which any protective, decorative, or functional coating is applied onto the surface of metal furniture.

"Metallic shoe-type seal" means a primary or secondary seal constructed of metal sheets (shoes) which are joined together to form a ring, springs, or levers which attach the shoes to the floating roof and hold the shoes against the tank wall, and a coated fabric which is suspended from the shoes to the floating roof.

"Miscellaneous fabricated product manufacturing process" means:

A manufacturing process involving one or more of the following applications, including any drying and curing of formulations, and capable of emitting VOM:

Adhesives to fabricate or assemble components or products

Asphalt solutions to paper or fiberboard

Asphalt to paper or felt

Coatings or dye to leather

Coatings to plastic

Coatings to rubber or glass

Disinfectant material to manufactured items

Plastic foam scrap or "fluff" from the manufacture of foam containers and packaging material to form resin pallets

Resin solutions to fiber substances



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Viscose solutions for food casings

The storage and handling of formulations associated with the process described above, and the use and handling of organic liquids and other substances for clean-up operations associated with the process described in this definition.

"Miscellaneous formulation manufacturing process" means:

A manufacturing process which compounds one or more of the following and is capable of emitting VOM:

Adhesives

Asphalt solutions

Caulks, sealants, or waterproofing agents

Coatings, other than paint and ink

Concrete curing compounds

Dyes

Friction materials and compounds

Resin solutions

Rubber solutions

Viscose solutions

The storage and handling of formulations associated with the process described above, and the use and handling of organic liquids and other substances for clean-up operations associated with the process described in this definition.

"Miscellaneous metal parts or products" means any metal part or metal product, even if attached to or combined with a nonmetal part or product, except cans, coils, metal furniture, large appliances, and magnet wire, magnet wire, automobiles, ships, and airplane bodies.

"Miscellaneous metal parts and products coating" means any coating applied to any metal part or metal product, even if attached to or combined with a nonmetal part or product, except cans, coils, metal furniture, large appliances, and magnet wire. Prime coat, prime surfacer coat, topcoat, and final repair coat for automobiles and light-duty trucks are not miscellaneous metal parts and products

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coatings. However, underbody anti-chip (e.g., underbody plastisol) automobile, and light-duty truck coatings are miscellaneous metal parts and products coatings. Also, automobile or light-duty truck refinishing coatings, coatings applied to the exterior of marine vessels, coatings applied to the exterior of airplanes, and the customized topcoating of automobiles and trucks if production is less than 35 vehicles per day are not miscellaneous metal parts and products coatings.

"Miscellaneous metal parts or products coating facility" means a facility that includes one or more miscellaneous metal parts or products coating lines.

"Miscellaneous metal parts or products coating line" means a coating line in which any protective, decorative, or functional coating is applied onto the surface of miscellaneous metal parts or products.

"Miscellaneous organic chemical manufacturing process" means:

A manufacturing process which produces by chemical reaction, one or more of the following organic compounds or mixtures of organic compounds and which is capable of emitting VOM:

Chemicals listed in Appendix A of this section

Chlorinated and sulfonated compounds

Cosmetic, detergent, soap, or surfactant intermediaries or specialties and products

Disinfectants

Food additives

Oil and petroleum product additives

Plasticizers

Resins or polymers

Rubber additives

Sweeteners

Varnishes

The storage and handling of formulations associated with the process described above and the use and handling of organic



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liquids and other substances for clean-up operations associated with the process described in this definition.

"Monitor" means to measure and record.

"Multiple package coating" means a coating made from more than one different ingredient which must be mixed prior to using and has a limited pot life due to the chemical reaction which occurs upon mixing.

"No Detectable Volatile Organic Material Emissions" means a discharge of volatile organic material into the atmosphere as indicated by an instrument reading of less than 500 ppm above background as determined in accordance with 40 CFR 60.485(c).

"Offset" means, with respect to printing and publishing operations, use of a blanket cylinder to transfer ink from the plate cylinder to the surface to be printed.

"Opaque stains" means all stains that are not semi-transparent stains.

"Open top vapor degreasing" means the batch process of cleaning and removing soils from surfaces by condensing hot solvent vapor on the colder metal parts.

"Open-ended valve" means any valve, except pressure relief devices, having one side of the valve in contact with process fluid and one side open to the atmosphere, either directly or through open piping.

"Operator of Gasoline Dispensing Facility" means any person who is the lessee of or operates, controls or supervises a gasoline dispensing facility.

"Organic compound" means any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate.

"Organic material" means any chemical compound of carbon including diluents and thinners which are liquids at standard conditions and which are used as solvents, viscosity reducers, or cleaning agents, but excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbonic acid, metallic carbide, metallic carbonates, and ammonium carbonate.

"Organic vapor" means the gaseous phase of an organic material or a mixture of organic materials present in the atmosphere.

"Oven" means a chamber within which heat is used for one or more of

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the following purposes: dry, bake, cure, or polymerize a coating or ink.

"Overall control" means the product of the capture efficiency and the control device efficiency.

"Overvarnish" means a transparent coating applied directly over ink or coating.

"Owner of Gasoline Dispensing Facility" means any person who has legal or equitable title to a stationary storage tank at a gasoline dispensing facility.

"Owner or operator" means any person who owns, operates, leases, controls, or supervises an emission source or air pollution control equipment.

"Packaging rotogravure printing" means rotogravure printing upon paper, paper board, metal foil, plastic film, and other substrates, which are, in subsequent operations, formed into packaging products or labels for articles to be sold.

"Packaging rotogravure printing line" means a rotogravure printing line in which surface coatings are applied to paper, paperboard, foil, film, or other substrates which are to be used to produce containers, packaging products, or labels for articles.

"Paint manufacturing plant" means a plant that mixes, blends, or compounds enamels, lacquers, sealers, shellacs, stains, varnishes, or pigmented surface coatings.

"Paper coating" means any coating applied on paper, plastic film, or metallic foil to make certain products, including (but not limited to) adhesive tapes and labels, book covers, post cards, office copier paper, drafting paper, or pressure sensitive tapes. Paper coating includes the application of coatings by impregnation and/or saturation.

"Paper coating facility" means a facility that includes one or more paper coating lines.

"Paper coating line" means a coating line in which any protective, decorative, or functional coating is applied on, saturated into, or impregnated into paper, plastic film, or metallic foil to make certain products, including (but not limited to) adhesive tapes and labels, book covers, post cards, office copier paper, drafting paper, and pressure sensitive tapes.



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"Parts per million (volume)" means a volume/volume ratio which expresses the volumetric concentration of gaseous air contaminant in a million unit volume of gas.

"Person" means any individual, corporation, partnership, association, State, municipality, political subdivision of a State; any agency, department, or instrumentality of the United States; and any officer, agent, or employee thereof.

"Petroleum" means the crude oil removed from the earth and the oils derived from tar sands, shale, and coal.

"Petroleum Liquid" means crude oil, condensate or any finished or intermediate product manufactured at a petroleum refinery, but not including Number 2 through Number 6 fuel oils as specified in ASTM D-396-69, gas turbine fuel oils Numbers 2-GT through 4-GT as specified in ASTM D-2880-71 or diesel fuel oils Numbers 2-D and 4-D, as specified in ASTM D-975-68.

"Petroleum refinery" means any facility engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, or other products through distillation of petroleum, or through redistillation, cracking, or reforming of unfinished petroleum derivatives.

"Pharmaceutical" means any compound or mixture, other than food, used in the prevention, diagnosis, alleviation, treatment, or cure of disease in human and animal.

"Pharmaceutical coating operation" means a device in which a coating is applied to a pharmaceutical, including air drying or curing of the coating.

"Photochemically Reactive Material" means any organic material with an aggregate of more than 20 percent of its total volume composed of the chemical compounds classified below or the composition of which exceeds any of the following individual percentage composition limitations. Whenever any photochemically reactive material or any constituent of any organic material may be classified from its chemical structure into more than one of the above groups of organic materials it shall be considered as a member of the most reactive group, that is, the group having the least allowable percent of the total organic materials.

A combination of hydrocarbons, alcohols, aldehydes, esters, ethers or ketones having an olefinic or cyclo-olefinic types of unsaturation: 5 percent. This definition does not apply to perchloroethylene or trichloroethylene.

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A combination of aromatic compounds with eight or more carbon atoms to the molecule except ethylbenzene: 8 percent.

A combination of ethylbenzene, ketones having branched hydrocarbon structures or toluene: 20 percent.

"Pigmented coatings" means opaque coatings containing binders and colored pigments which are formulated to conceal the wood surface either as an undercoat or topcoat.

"Plant" means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control), except the activities of any marine vessel. Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same "Major Group" (i.e., which have the same two-digit code) as described in the "Standard Industrial Classification Manual, 1987" (incorporated by reference in Section 219.112).

"Plasticizers" means a substance added to a polymer composition to soften and add flexibility to the product.

"Pneumatic Rubber Tire Manufacture" means the production of pneumatic rubber tires with a bead diameter up to but not including 20.0 inches and cross section dimension up to 12.8 inches, but not including specialty tires for antique or other vehicles when produced on equipment separate from normal production lines for passenger or truck type tires.

"Polystyrene Plant" means any plant using styrene to manufacture polystyrene resin.

"Polystyrene Resin" means substance consisting of styrene polymer and additives which is manufactured at a polystyrene plant.

"Pressure Release" means the emission of materials resulting from system pressure being greater than set pressure of the pressure relief device.

"Pressure Tank" means a tank in which fluids are stored at a pressure greater than atmospheric pressure.

"Prime coat" means the first of two or more coatings applied to a surface.

"Prime surfacer coat" means a coating used to touch up areas on the surface of automobile or light-duty truck bodies not adequately



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covered by the prime coat before application of the top coat. The prime surfacer coat is applied between the prime coat and topcoat. An anti-chip coating applied to main body parts (e.g., rocker panels, bottom of doors and fenders, and leading edge of roof) is a prime surfacer coat.

"Primers" means any coatings formulated and applied to substrates to provide a firm bond between the substrate and subsequent coats.

"Printing" means the application of words, designs, and pictures to a substrate using ink.

"Printing line" means an operation consisting of a series of one or more roll printers and any associated roll coaters, drying areas, and ovens wherein one or more coatings are applied, dried, and/or cured.

"Process" means any stationary emission source other than a fuel combustion emission source or an incinerator.

"Process Unit" means components assembled to produce, as intermediate or final products, one or more of the chemicals listed in 35 Ill. Adm. Code 219 Appendix A. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product.

"Process Unit Shutdown" means a work practice or operational procedure that stops production from a process unit or part of a process unit. An unscheduled work practice or operational procedure that stops production from a process unit or part of a process unit for less than 24 hours is not a process unit shutdown. The use of spare components and technically feasible bypassing of components without stopping production is not a process unit shutdown.

"Production equipment exhaust system" means a system for collecting and directing into the atmosphere emissions of volatile organic material from reactors, centrifuges, and other process emission sources.

"Publication rotogravure printing line" means a rotogravure printing line in which coatings are applied to paper which is subsequently formed into books, magazines, catalogues, brochures, directories, newspaper supplements, or other types of printed material.

"Purged Process Fluid" means liquid or vapor from a process unit that contains volatile organic material and that results from flushing or cleaning the sample line(s) of a process unit so that an uncontaminated sample may then be taken for testing or analysis.

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"Reactor" means a vat, vessel, or other device in which chemical reactions take place.

"Reasonably Available Control Technology (RACT)" means the lowest emission limitation that an emission source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility.

"Refiner" means any person who owns, leases, operates, controls, or supervises a refinery.

"Refinery Fuel Gas" means any gas which is generated by a petroleum refinery process unit and which is combusted at the refinery, including any gaseous mixture of natural gas and fuel gas.

"Refinery unit, process unit or unit" means a set of components which are a part of a basic process operation such as distillation, hydrotreating, cracking, or reforming of hydrocarbons.

"Refrigerated condenser" means a surface condenser in which the coolant supplied to the condenser has been cooled by a mechanical device, other than by a cooling tower or evaporative spray cooling, such as refrigeration unit or steam chiller unit.

"Reid vapor pressure" means the standardized measure of the vapor pressure of a liquid in pounds per square inch absolute (Psia) at 100°F (37.8°C).

"Repair coatings" means coatings used to correct imperfections or damage to furniture surface.

"Repaired" means, for the purpose of Subpart Q of this Part, that equipment component has been adjusted, or otherwise altered, to eliminate a leak.

"Residual Fuel Oil" means fuel oils of grade No. 4, 5 and 6 as specified in detailed requirements for fuel oils ASTM D-396-69 (1971).

"Retail Outlet" means any gasoline dispensing facility at which gasoline is sold or offered for sale for use in motor vehicles.

"Roll coater" means an apparatus in which a uniform layer of coating is applied by means of one or more rolls across the entire width of a moving substrate.

"Roll printer" means an apparatus used in the application of words, designs, or pictures to a substrate, usually by means of one or more rolls each with only partial coverage.



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"Roll printing" means the application of words, designs, and pictures to a substrate usually by means of a series of hard rubber or metal rolls each with only partial coverage.

"Roller coating" means a method of applying a coating to a sheet or strip in which the coating is transferred by a roller or series of rollers.

"Rotogravure printing" means the application of words, designs, and pictures to a substrate by means of a roll printing technique in which the pattern to be applied is recessed relative to the non-image area.

"Rotogravure printing line" means a printing line in which each roll printer uses a roll with recessed areas for applying an image to a substrate.

"Safety relief valve" means a valve which is normally closed and which is designed to open in order to relieve excessive pressures within a vessel or pipe.

"Sanding sealers" means any coatings formulated for and applied to bare wood for sanding and to seal the wood for subsequent application of varnish. To be considered a sanding sealer a coating must be clearly labelled as such.

"Sealer" means a coating containing binders which seals wood prior to the application of the subsequent coatings.

"Sensor" means a device that measures a physical quantity or the change in a physical quantity such as temperature, pressure, flow rate, pH, or liquid level.

"Semi-transparent stains" means stains containing dyes or semi-transparent pigments which are formulated to enhance wood grain and change the color of the surface but not to conceal the surface, including, but not limited to, sap stain, toner, non-grain raising stains, pad stain, or spatter stain.

"Set of safety relief valves" means one or more safety relief valves designed to open in order to relieve excessive pressures in the same vessel or pipe.

"Sheet basecoat" means a coating applied to metal when the metal is in sheet form to serve as either the exterior or interior of a can for either two-piece or three-piece cans.

"Side-seam spray coat" means a coating applied to the seam of a three-piece can.

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"Single coat" means one coating application applied to a metal surface.

"Solvent" means a liquid substance that is used to dissolve or dilute another substance.

"Solvent cleaning" means the process of cleaning soils from surfaces by cold cleaning, open top vapor degreasing, or conveyed degreasing.

"Specified air contaminant" means any air contaminant as to which this Part contains emission standards or other specific limitations.

"Splash loading" means a method of loading a tank, railroad tank car, tank truck, or trailer by use of other than a submerged loading pipe.

"Stack" means a flue or conduit, free-standing or with exhaust port above the roof of the building on which it is mounted, by which air contaminants are emitted into the atmosphere.

"Standard conditions" means a temperature of 70°F and a pressure of 14.7 psia.

"Standard cubic foot (scf)" means the volume of one cubic foot of gas at standard conditions.

"Standard Industrial Classification Manual" means the Standard Industrial Classification Manual (1987), Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402 (incorporated by reference in Section 219.112).

"Start-up" means the setting in operation of an emission source for any purpose.

"Stationary emission source" and "Stationary source" mean an emission source which is not self-propelled.

"Storage tank or storage vessel" means any stationary tank, reservoir or container used for the storage of VOL.

"Styrene Devolatilizer Unit" means equipment performing the function of separating unreacted styrene monomer and other volatile components from polystyrene in a vacuum devolatilizer.

"Styrene Recovery Unit" means equipment performing the function of separating styrene monomer from other less volatile components of the styrene devolatilizer unit's output. The separated styrene monomer may be reused as a raw material in the polystyrene plant.



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"Submerged loading pipe" means any discharge pipe or nozzle which meets either of the following conditions:

Where the tank is filled from the top, the end of the discharge pipe or nozzle must be totally submerged when the liquid level is 15 cm (6 in.) above the bottom of the tank.

Where the tank is filled from the side, the discharge pipe or nozzle must be totally submerged when the liquid level is 46 cm (18 in.) above the bottom of the tank.

"Substrate" means the surface onto which a coating is applied or into which a coating is impregnated.

"Surface condenser" means a device which removes a substance from a gas stream by reducing the temperature of the stream, without direct contact between the coolant and the stream.

"Synthetic Organic Chemical or Polymer Manufacturing Plant" means a plant that produces, as intermediates or final products, one or more of the chemicals or polymers listed in 35 Ill. Adm. Code 219 Appendix A.

"Tablet coating operation" means a pharmaceutical coating operation in which tablets are coated.

"Thirty-day rolling average" means any value arithmetically averaged over any consecutive thirty-days.

"Three-piece can" means a can which is made from a rectangular sheet and two circular ends.

"Topcoat" means a coating applied in a multiple coat operation other than prime coat, final repair coat, or prime surfacer coat.

"Topcoat operation" means all topcoat spray booths, flash-off areas, and bake ovens at a facility which are used to apply, dry, or cure the final coatings (except final off-line repair) on components of automobile or light-duty truck bodies.

"Transfer efficiency" means the ratio of the amount of coating solids deposited onto a part or product to the total amount of coating solids used.

"Tread End Cementing" means the application of a solvent-based cement to the tire tread ends.

"True vapor pressure" means the equilibrium partial pressure exerted by a volatile organic liquid as determined in accordance with methods

described in American Petroleum Institute Bulletin 2517, "Evaporation Loss From Floating Roof Tanks," second edition, February 1980 (incorporated by reference in Section 219.112).

"Turnaround" means the procedure of shutting down an operating refinery unit, emptying gaseous and liquid contents to do inspection, maintenance and repair work, and putting the unit back into production.

"Two-piece can" means a can which is drawn from a shallow cup and requires only one end to be attached.

"Undercoaters" means any coatings formulated for and applied to substrates to provide a smooth surface for subsequent coats.

"Undertread Cementing" means the application of a solvent-based cement to the underside of a tire tread.

"Unregulated safety relief valve" means a safety relief valve which cannot be actuated by a means other than high pressure in the pipe or vessel which it protects.

"Vacuum producing system" means any reciprocating, rotary, or centrifugal blower or compressor or any jet ejector or device that creates suction from a pressure below atmospheric and discharges against a greater pressure.

"Valves not externally regulated" means valves that have no external controls, such as in-line check valves.

"Vapor balance system" means any combination of pipes or hoses which creates a closed system between the vapor spaces of an unloading tank and a receiving tank such that vapors displaced from the receiving tank are transferred to the tank being unloaded.

"Vapor collection system" means all piping, seals, hoses, connections, pressure-vacuum vents, and other possible sources between the gasoline delivery vessel and the vapor processing unit and/or the storage tanks and vapor holder.

"Vapor control system" means any system that limits or prevents release to the atmosphere of organic material in the vapors displaced from a tank during the transfer of gasoline.

"Vapor-Mounted Primary Seal" means a primary seal mounted with an air space bounded by the bottom of the primary seal, the tank wall, the liquid surface and the floating roof.



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"Vapor recovery system" means a vapor gathering system capable of collecting all VOM vapors and gases discharged from the storage tank and a vapor disposal system capable of processing such VOM vapors and gases so as to prevent their emission to the atmosphere.

"Vehicle" means a device by which any person or property may be propelled, moved, or drawn upon a highway, excepting a device moved exclusively by human power or used exclusively upon stationary rails or tracks.

"Vinyl coating" means any topcoat or printing ink applied to vinyl coated fabric or vinyl sheets. Vinyl coating does not include plastisols.

"Vinyl coating facility" means a facility that includes one or more vinyl coating line(s).

"Vinyl coating line" means a coating line in which any protective, decorative or functional coating is applied onto vinyl coated fabric or vinyl sheets.

"Volatile organic liquid" means any substance which is liquid at storage conditions and which contains volatile organic compounds.

"Volatile organic material (VOM) or volatile organic compound (VOC)" means any organic compound which participates in atmospheric photochemical reactions. This includes any organic compound other than the following compounds: methane, ethane, methyl chloroform (1,1,1-trichloroethane), CFC-113 (trichlorotrifluoroethane), methylene chloride (dichloromethane), CFC-11 (trichlorofluoromethane), CFC-12 (dichlorodifluoromethane), CFC-22 (chlorodifluoromethane), FC-23 (trifluoromethane), CFC-114 (dichlorotetrafluoroethane), CFC-115 (chloropentafluoroethane), HCFC-123 (dichlorotrifluoroethane), HFC-134a (tetrafluoroethane), HCFC-141b (dichlorofluoroethane) and HCFC-142b (chlorodifluoroethane). These compounds have been determined to have negligible photochemical reactivity.

For purposes of determining compliance with emission limits, VOC will be measured by the approved test methods. Where such a method also inadvertently measures compounds with negligible photochemical reactivity, an owner or operator may exclude these negligibly reactive compounds when determining compliance with an emissions standard.

"Volatile Petroleum Liquid" means any petroleum liquid with a true vapor pressure that is greater than 1.5 psia (78 millimeters of mercury) at standard conditions.

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"Wash coat" means a coating containing binders which seals wood surfaces, prevents undesired staining, and controls penetration.

"Wastewater (Oil/Water) Separator" means any device or piece of equipment which utilizes the difference in density between oil and water to remove oil and associated chemicals of water, or any device, such as a flocculation tank or a clarifier, which removes petroleum derived compounds from waste water.

"Web" means a substrate which is printed in continuous roll-fed presses.

"Wood furniture" means room furnishings including cabinets (kitchen, bath, and vanity), tables, chairs, beds, sofas, shutters, art objects, wood paneling, wood flooring, and any other coated furnishings made of wood, wood composition, or fabricated wood materials.

"Wood furniture coating facility" means a facility that includes one or more wood furniture coating line(s).

"Wood furniture coating line" means a coating line in which any protective, decorative, or functional coating is applied onto wood furniture.

"Woodworking" means the shaping, sawing, grinding, smoothing, polishing, and making into products of any form or shape of wood.

## Section 219.105 Testing Methods and Procedures

## a) Coatings, Inks and Fountain Solutions

The following test methods and procedures shall be used to determine compliance of applied coatings, inks, and fountain solutions with the limitations set forth in this Part.

- 1) Sampling: Samples collected for analyses shall be one-liter taken into a one-liter container at a location and time such that the sample will be representative of the coating as applied (i.e., the sample shall include any dilution solvent or other VOM added during the manufacturing process). The container must be tightly sealed immediately after the sample is taken. Any solvent or other VOM added after the sample is taken must be measured and accounted for in the calculations in subsection (a)(3). For multiple package coatings, separate samples of each component shall be obtained. A mixed sample shall not be obtained as it will cure in the container. Sampling procedures shall follow the guidelines presented in:



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- A) ASTM D3925-81(1985) standard practice for sampling liquid paints and related pigment coating. This practice is incorporated by reference in Section 219.112.
- B) ASTM E300-86 standard practice for sampling industrial chemicals. This practice is incorporated by reference in Section 219.112.
- 2) Analyses: The applicable analytical methods specified below shall be used to determine the composition of coatings, inks, or fountain solutions as applied.
- A) Method 24 of 40 CFR 60, Appendix A, incorporated by reference in Section 219.112, shall be used to determine the VOM content and density of coatings. If it is demonstrated to the satisfaction of the Agency and the USEPA that plant coating formulation data are equivalent to Method 24 results, formulation data may be used. In the event of any inconsistency between a Method 24 test and a facility's formulation data, the Method 24 test will govern.
- B) Method 24A of 40 CFR Part 60, Appendix A, incorporated by reference in Section 219.112, shall be used to determine the VOM content and density of rotogravure printing inks and related coatings. If it is demonstrated to the satisfaction of the Agency and USEPA that the plant coating formulation data are equivalent to Method 24A results, formulation data may be used. In the event of any inconsistency between a Method 24A test and a facility's formulation data, the Method 24A test will govern.
- C) The following ASTM methods are the analytical procedures for determining VOM:
- i) ASTM D1475-85: Standard test method for density of paint, varnish, lacquer and related products. This test method is incorporated by reference in Section 219.112.
  - ii) ASTM D2369-87: Standard test method for volatile content of a coating. This test method is incorporated by reference in Section 219.112.
  - iii) ASTM D3792-86: Standard test method for water content of water-reducible paints by direct injection into a gas chromatograph. This test method is incorporated by reference in Section 219.112.

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- iv) ASTM D4017-81(1987): Standard test method for water content in paints and paint materials by the Karl Fischer method. This test method is incorporated by reference in Section 219.112.
- v) ASTM D4457-85: Standard test method for determination of dichloromethane and 1,1,1, trichloroethane in paints and coatings by direct injection into a gas chromatograph. (The procedure delineated above can be used to develop protocols for any compounds specifically exempted from the definition of VOM.) This test method is incorporated by reference in Section 219.112.
- vi) ASTM D2697-86: Standard test method for volume non-volatile matter in clear or pigmented coatings. This test method is incorporated by reference in Section 219.112.
- vii) ASTM D3980-87: Standard practice for interlaboratory testing of paint and related materials. This practice is incorporated by reference in Section 219.112.
- viii) ASTM E180-85: Standard practice for determining the precision data of ASTM methods for analysis of and testing of industrial chemicals. This practice is incorporated by reference in Section 219.112.
- ix) ASTM D2372-85: Standard method of separation of vehicle from solvent-reducible paints. This method is incorporated by reference in Section 219.112.
- D) Use of an adaptation to any of the analytical methods specified in subsections (a)(2)(A), (B), and (C) may not be used unless approved by the Agency and USEPA. An owner or operator must submit sufficient documentation for the Agency and USEPA to find that the analytical methods specified in subsections (a)(2)(A), (B), and (C) will yield inaccurate results and that the proposed adaptation is appropriate.
- 3) Calculations: Calculations for determining the VOM content, water content and the content of any compounds which are specifically exempted from the definition of VOM of coatings, inks and fountain solutions as applied shall follow the guidance provided in the following documents.
  - A) "A Guide for Surface Coating Calculation",



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EPA-340/1-86-016, incorporated by reference in Section 219.112.

- B) "Procedures for Certifying Quantity of Volatile Organic Compounds Emitted by Paint, Ink and Other Coatings" (revised June 1986), EPA-450/3-84-019, incorporated by reference in Section 219.112.

- C) "A Guide for Graphic Arts Calculations", August 1988, EPA-340/1-88-003, incorporated by reference in Section 219.112

b) Automobile or Light-Duty Truck Test Protocol

The protocol for testing, including determining the transfer efficiency, of coating applicators at topcoat coating operations at an automobile assembly facility shall follow the procedure in: "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Topcoat Operations", December 1988, EPA-450/3-88-018, incorporated by reference in Section 219.112.

c) Capture System Efficiency Test Protocols

1) Applicability

The requirements of subsection (c)(2) shall apply to all VOM emitting processes employing capture equipment (e.g., hoods, ducts), except those cases noted below.

- A) If a source installs a permanent total enclosure (PTE) that meets Agency and USEPA specifications, and which directs all VOM to a control device, then the source is exempted from the requirements described in subsection (c)(2). The Agency and USEPA specifications to determine whether a structure is considered a PTE are given in Procedure I of Appendix B of this Part. In this instance, the capture efficiency is assumed to be 100 percent and the source is still required to measure control efficiency using appropriate test methods as specified in subsection (d).

- B) If a source uses a control device designed to collect and recover VOM (e.g., carbon adsorber), an explicit measurement of capture efficiency is not necessary provided that the conditions given below are met. The overall control of the system can be determined by directly comparing the input liquid VOM to the recovered liquid VOM. The general procedure for use in this situation is

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given in 40 CFR 60.433, incorporated by reference in Section 219.112, with the following additional restrictions:

- i) The source must be able to equate solvent usage with solvent recovery on a 24-hour (daily) basis, rather than a 30-day weighted average, within 72 hours following the 24-hour period. In addition, one of the following two criteria must be met:
- ii) The solvent recovery system (i.e., capture and control system) must be dedicated to a single process line (e.g., one process line venting to a carbon adsorber system), or
- iii) If the solvent recovery system controls multiple process lines, then the source must be able to demonstrate that the overall control (i.e., the total recovered solvent VOM divided by the sum of liquid VOM input to all process lines venting to the control system) meets or exceeds the most stringent standard applicable for any process line venting to the control system.

2) Specific Requirements

The capture efficiency of a process line shall be measured using one of the four protocols given below. Any error margin associated with a test protocol may not be incorporated into the results of a capture efficiency test. If these techniques are not suitable for a particular process, then the source may use an alternative capture efficiency protocol, provided that the alternative protocol is approved by the Agency and approved by the USEPA as a SIP revision.

- A) Gas/gas method using temporary total enclosure (TTE). The Agency and USEPA specifications to determine whether a temporary enclosure is considered a TTE are given in Procedure T of Appendix B of this Part. The capture efficiency equation to be used for this protocol is:

$$CE = \frac{GW}{(GW + FW)}$$

where: CE = capture efficiency, decimal fraction

GW = mass of VOM captured and delivered to control device using a TTE

FW = mass of fugitive VOM that escapes from a TTE



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Procedure G.2 contained in Appendix B of this Part is used to obtain G. Procedure F.1 in Appendix B of this Part is used to obtain F<sub>w</sub>.

- B) Liquid/gas method using TTE. The Agency and USEPA specifications to determine whether a temporary enclosure is considered a TTE are given in Procedure T of Appendix B of this Part. The capture efficiency equation to be used for this protocol is:

$$CE = (L - F) / L$$

where: CE = capture efficiency, decimal fraction

L = mass of liquid VOM input to process

F<sub>w</sub> = mass of fugitive VOM that escapes from a TTE

Procedure L contained in Appendix B of this Part is used to obtain L. Procedure F.1 in Appendix B of this Part is used to obtain F<sub>w</sub>.

- C) Gas/gas method using the building or room (building or room enclosure) in which the affected source is located as the enclosure and in which "F" and "G" are measured while operating only the affected facility. All fans and blowers in the building or room must be operated as they would under normal production. The capture efficiency equation to be used for this protocol is:

$$CE = G / (G + F_a)$$

where: CE = capture efficiency, decimal fraction

G = mass of VOM captured and delivered to control device

F<sub>a</sub> = mass of fugitive VOM that escapes from building enclosure

Procedure G.2 contained in Appendix B of this Part is used to obtain G. Procedure F.2 in Appendix B of this Part is used to obtain F<sub>a</sub>.

- D) Liquid/gas method using the building or room (building or room enclosure) in which the affected source is located as the enclosure and in which "F" and "L" are measured while operating only the affected facility. All fans and blowers

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in the building or room must be operated as they would under normal production. The capture efficiency equation to be used for this protocol is:

$$CE = (L - F_a) / L$$

where: CE = capture efficiency, decimal fraction

L = mass of liquid VOM input to process

F<sub>a</sub> = mass of fugitive VOM that escapes from building enclosure

Procedure L contained in Appendix B of this section is used to obtain L. Procedure F.2 in Appendix B of this section is used to obtain F<sub>a</sub>.

## 3) Recordkeeping and Reporting

- A) All affected facilities must maintain a copy of the capture efficiency protocol submitted to the Agency and the USEPA on file. All results of the appropriate test methods and capture efficiency protocols must be reported to the Agency within sixty (60) days of the test date. A copy of the results must be kept on file with the source for a period of three (3) years.
- B) If any changes are made to capture or control equipment, then the source is required to notify the Agency and the USEPA of these changes and a new test may be required by the Agency or the USEPA.
- C) The source must notify the Agency 30 days prior to performing any capture efficiency or control test. At that time, the source must notify the Agency which capture efficiency protocol and control device test methods will be used.
- D) Sources utilizing a PTE must demonstrate that this enclosure meets the requirement given in Procedure T (in Appendix B of this Part) for a PTE during any testing of their control device.
- E) Sources utilizing a TTE must demonstrate that their TTE meets the requirements given in Procedure T (in Appendix B of this Part) for a TTE during testing of their control device. The source must also provide documentation that the quality assurance criteria for a TTE have been achieved.



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## d) Control Device Efficiency Testing and Monitoring

- 1) The control device efficiency shall be determined by simultaneously measuring the inlet and outlet gas phase VOM concentrations and gas volumetric flow rates in accordance with the gas phase test methods specified in subsection (f).
- 2) Any owner or operator that uses an afterburner or carbon adsorber to comply with any Section of this Part shall use USEPA approved continuous monitoring equipment which is installed, calibrated, maintained, and operated according to vendor specifications at all times the afterburner or carbon adsorber is in use. The continuous monitoring equipment must monitor the following parameters:

- A) Combustion chamber temperature of each afterburner.
- B) Temperature rise across each catalytic afterburner bed or VOM concentration of exhaust.
- C) The VOM concentration of each carbon adsorption bed exhaust.

## e) Overall Efficiency

- 1) The overall efficiency of the emission control system shall be determined as the product of the capture system efficiency and the control device efficiency or by the liquid/liquid test protocol as specified in 40 CFR 60.433, incorporated by reference in Section 219.112, (and revised by subsection (c)(1)(B) for each solvent recovery system. In those cases in which the overall efficiency is being determined for an entire line, the capture efficiency used to calculate the product of the capture and control efficiency is the total capture efficiency over the entire line.

- 2) For coating lines which are both chosen by the owner or operator to comply with Section 219.207(a), (d), (e), (f), or (g) by the alternative in Section 219.207(b)(2) and meet the criteria allowing them to comply with Section 219.207 instead of Section 219.204, the overall efficiency of the capture system and control device, as determined by the test methods and procedures specified in subsections (c), (d) and (e)(1), shall be no less than the equivalent overall efficiency which shall be calculated by the following equation:

$$E = [(VOM_c - VOM_i)/VOM_a] \times 100$$

where:

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E = Equivalent overall efficiency of the capture system and control device as a percentage.

VOM<sub>a</sub> = Actual VOM content of a coating, or the daily-weighted average VOM content of two or more coatings (if more than one coating is used), as applied to the subject coating line as determined by the applicable test methods and procedures specified in subsection (a)(4)(i) of this Part in units of kg VOM/l (lb VOM/gal) of coating solids as applied.

VOM<sub>i</sub> = The VOM emission limit specified in Section 219.207(a) or (b) in units of kg VOM/l (lb VOM/gal) of coating solids as applied.

## f) Volatile Organic Material Gas Phase Source Test Methods

The methods in 40 CFR Part 60, Appendix A, incorporated by reference in Section 219.112 delineated below shall be used to determine control device efficiencies.

- 1) 40 CFR Part 60, Appendix A, Method 18, 25 or 25A, incorporated by reference in Section 219.112 as appropriate to the conditions at the site, shall be used to determine VOM concentration. Method selection shall be based on consideration of the diversity of organic species present and their total concentration and on consideration of the potential presence of interfering gases. Except as indicated in subsections (f)(1)(A) and (B) below, the test shall consist of three separate runs, each lasting a minimum of 60 min, unless the Agency and the USEPA determine that process variables dictate shorter sampling times.

A) When the method is to be used to determine the efficiency of a carbon adsorption system with a common exhaust stack for all the individual adsorber vessels, the test shall consist of three separate runs, each coinciding with one or more complete sequences through the adsorption cycles of all the individual adsorber vessels.

B) When the method is to be used to determine the efficiency of a carbon adsorption system with individual exhaust stacks for each adsorber vessel, each adsorber vessel shall be tested individually. The test for each adsorber vessel shall consist of three separate runs. Each run shall coincide with one or more complete adsorption cycles.

- 2) 40 CFR Part 60, Appendix A, Method 1 or 1A, incorporated by



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reference in Section 219.112, shall be used for sample and velocity traverses.

- 3) 40 CFR Part 60, Appendix A, Method 2, 2A, 2C or 2D, incorporated by reference in Section 219.112, shall be used for velocity and volumetric flow rates.
- 4) 40 CFR Part 60, Appendix A, Method 3, incorporated by reference in Section 219.112, shall be used for gas analysis.
- 5) 40 CFR Part 60, Appendix A, Method 4, incorporated by reference in Section 219.112, shall be used for stack gas moisture.
- 6) 40 CFR Part 60, Appendix A, Methods 2, 2A, 2C, 2D, 3 and 4, incorporated by reference in Section 219.112, shall be performed, as applicable, at least twice during each test run.
- 7) Use of an adaptation to any of the test methods specified in subsections (f)(1), (2), (3), (4), (5) and (6) may not be used unless approved by the Agency and the USEPA. An owner or operator must submit sufficient documentation for the Agency and the USEPA to find that the test methods specified in subsections (f)(1), (2), (3), (4), (5) and (6) will yield inaccurate results and that the proposed adaptation is appropriate.

## g) Leak Detection Methods for Volatile Organic Material

Owners or operators required by this Part to carry out a leak detection monitoring program shall comply with the following requirements:

- 1) Leak Detection Monitoring
  - A) Monitoring shall comply with 40 CFR 60, Appendix A, Method 21, incorporated by reference in Section 219.112.
  - B) The detection instrument shall meet the performance criteria of Method 21.
  - C) The instrument shall be calibrated before use on each day of its use by the methods specified in Method 21.
  - D) Calibration gases shall be:
    - i) Zero air (less than 10ppm of hydrocarbon in air); and
    - ii) A mixture of methane or n-hexane and air at a concentration of approximately, but no less than, 10,000 ppm methane or n-hexane.

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- E) The instrument probe shall be traversed around all potential leak interfaces as close to the interface as possible as described in Method 21.
- 2) When equipment is tested for compliance with no detectable emissions as required, the test shall comply with the following requirements:

- A) The requirements of subsections (g)(1)(A) through (g)(1)(E) above shall apply.
- B) The background level shall be determined as set forth in Method 21.
- 3) Leak detection tests shall be performed consistent with:
  - A) "API Course SI 417 Controlling Volatile Organic Compound Emissions from Leaking Process Equipment", EPA-450/2-82-015, incorporated by reference in Section 219.112.
  - B) "Portable Instrument User's Manual for Monitoring VOC Sources", EPA-340/1-86-015, incorporated by reference in Section 219.112.
  - C) "Protocols for Generating Unit-Specific Emission Estimates for Equipment Leaks of VOC and VHAP", EPA-450/3-88-010, incorporated by reference in Section 219.112.
  - D) "Petroleum Refinery Enforcement Manual", EPA-340/1-80-008, incorporated by reference in Section 219.112.

## h) Bulk Gasoline Delivery System Test Protocol

- 1) The method for determining the emissions of gasoline from a vapor recovery system are delineated in 40 CFR 60, Subpart XX, Section 60.503, incorporated by reference in Section 219.112.
- 2) Other tests shall be performed consistent with:
  - A) "Inspection Manual for Control of Volatile Organic Emissions from Gasoline Marketing Operations: Appendix D", EPA-340/1-80-012, incorporated by reference in Section 219.112.
  - B) "Control of Hydrocarbons from Tank Truck Gasoline Loading Terminals: Appendix A", EPA-450/2-77-026, incorporated by reference in Section 219.112.



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Section 219.106 Compliance Dates

- a) Compliance with the requirements of all rules is required by May 1, 1992, or sixty days after a final decision by a federal court of the general appeal of the FIP (Illinois Environmental Regulatory Group v. USEPA, No. 90-2778 (and Consolidated Cases) (7th Cir.)), whichever is later, consistent with the provisions of Section 219.103.
- b) Compliance with the requirements of provisions of this part specifically applicable to a category of sources which is the same as any of the individual appeals of the FIP shall be required by May 1, 1992, or sixty days following a final decision by a federal court of the appeal of the FIP impacting the specific category of sources, whichever is later, consistent with the provisions of Section 219.103.

Section 219.107 Afterburners

The operation of any natural gas fired afterburner and capture system used to comply with this Part is not required during the period of November 1 of any year to April 1 of the following year provided that the operation of such devices is not required for purposes of occupational safety or health, or for the control of toxic substances, odor nuisances, or other regulated pollutants.

Section 219.108 Exemptions, Variations, and Alternative Means of Control or Compliance Determinations

Notwithstanding the provisions of any other Sections of this Part, any exemptions, variations or alternatives to the control requirements, emission limitations, or test methods set forth in this Part shall be effective only when approved by the Agency and approved by the USEPA as a SIP revision.

Section 219.109 Vapor Pressure of Volatile Organic Liquids

- a) If the VOL consists of only a single compound, the vapor pressure shall be determined by ASTM Method D2879-86 (incorporated by reference in Section 219.112) or the vapor pressure may be obtained from a published source such as: Boublik, T., V. Fried and E. Hala, "The Vapor Pressure of Pure Substances," Elsevier Scientific Publishing Co., New York (1973); Perry's Chemical Engineer's Handbook, McGraw-Hill Book Company (1984); CRC Handbook of Chemistry and Physics, Chemical Rubber Publishing Company (1986-87); and Lange's Handbook of Chemistry, John A. Dean, editor, McGraw-Hill Book Company (1985).

- b) If the VOL is a mixture, the vapor pressure shall be determined by ASTM Method D2879-86 (incorporated by reference in Section 219.112) or by the following equation:

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$$P_{v,oi} = \sum_{i=1}^n P_i X_i$$

where:

$P_{v,oi}$  = Total vapor pressure of the mixture.

$n$  = Number of components in the mixture.

$i$  = Subscript denoting an individual component.

$P_i$  = Vapor pressure of a component determined in accordance with Subpart A of this Part

$X_i$  = Mole fraction of the component in the total mixture.

Section 219.110 Vapor Pressure of Organic Material or Solvent

- a) If the organic material or solvent consists of only a single compound, the vapor pressure shall be determined by ASTM Method D2879-86 (incorporated by reference in Section 219.112) or the vapor pressure may be obtained from a published source such as: Boublik, T., V. Fried and E. Hala, "The Vapor Pressure of Pure Substances," Elsevier Scientific Publishing Co., New York (1973); Perry's Chemical Engineer's Handbook, McGraw-Hill Book Company (1984); CRC Handbook of Chemistry and Physics, Chemical Rubber Publishing Company (1986-87); and Lange's Handbook of Chemistry, John A. Dean, editor, McGraw-Hill Book Company (1985).

- b) If the organic material or solvent is in a mixture made up of both organic material compounds and compounds which are not organic material, the vapor pressure shall be determined by the following equation:

$$P_{om} = \frac{\sum_{i=1}^n P_i X_i}{\sum_{i=1}^n X_i}$$

where:

$P_{om}$  = Total vapor pressure of the portion of the mixture which is composed of organic material,



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- $n$  = Number of organic material components in the mixture,  
 $i$  = Subscript denoting an individual component,  
 $P_i$  = Vapor pressure of an organic material component determined in accordance with Subpart A of this Part,  
 $X_i$  = Mole fraction of the organic material component of the total mixture.

- c) If the organic material or solvent is in a mixture made up of only organic material compounds, the vapor pressure shall be determined by ASTM Method D2879-86 (incorporated by reference in Section 219.112) or by the above equation.

## Section 219.111 Vapor Pressure of Volatile Organic Material

- a) If the VOM consists of only a single compound, the vapor pressure shall be determined by ASTM Method D2879-86 (incorporated by reference in Section 219.112) or the vapor pressure may be obtained from a published source such as: Boublik, T., V. Fried and E. Hala, "The Vapor Pressure of Pure Substances," Elsevier Scientific Publishing Co., New York (1973); Perry's Chemical Engineer's Handbook, McGraw-Hill Book Company (1984); CRC Handbook of Chemistry and Physics, Chemical Rubber Publishing Company (1986-87); and Lange's Handbook of Chemistry, John A. Dean, editor, McGraw-Hill Book Company (1985).

- b) If the VOM is in a mixture made up of both VOM compounds and compounds which are not VOM, the vapor pressure shall be determined by the following equation:

$$P_{\text{vom}} = \frac{\sum_{i=1}^n P_i X_i}{\sum_{i=1}^n X_i}$$

where:

$P_{\text{vom}}$  = Total vapor pressure of the portion of the mixture which is composed of VOM,

$n$  = Number of VOM components in the mixture,

$i$  = Subscript denoting an individual component.

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- $P_i$  = Vapor pressure of a VOM component determined in accordance with Subpart A of this Part,  
 $X_i$  = Mole fraction of the VOM component of the total mixture.  
 c) If the VOM is in a mixture made up of only VOM compounds, the vapor pressure shall be determined by ASTM Method D2879-86 (incorporated by reference in Section 219.112) or by the above equation.

## Section 219.112 Incorporations by Reference

The following materials are incorporated by reference:

- a) American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103:

- 1) ASTM D2879-86
- 2) ASTM D323-82
- 3) ASTM D86-82
- 4) ASTM D-369-69 (1971)
- 5) ASTM D-396-69
- 6) ASTM D2880-71
- 7) ASTM D-975-68
- 8) ASTM D3925-81 (1985)
- 9) ASTM E300-86
- 10) ASTM D1475-85
- 11) ASTM D2369-87
- 12) ASTM D3792-86
- 13) ASTM D4017-81 (1987)
- 14) ASTM D457-85
- 15) ASTM D2697-86
- 16) ASTM D3980-87
- 17) ASTM E180-85
- 18) ASTM D2372-85
- 19) ASTM D97-66
- 20) ASTM E-168
- 21) ASTM E-169
- 22) ASTM E-260
- 23) ASTM D2504-83
- 24) ASTM D2382-83

- b) Standard Industrial Classification Manual, published by Executive Office of the President, Office of Management and Budget, Washington, D.C., 1987.

- c) American Petroleum Institute Bulletin 2517, "Evaporation Loss From Floating Roof Tanks", Second ed., February, 1980.

- d) 40 CFR 60 (July 1, 1990).



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- e) 40 CFR 61 (July 1, 1990).
- f) 40 CFR 50 (July 1, 1989).
- g) 40 CFR 51 (July 1, 1989).
- h) 40 CFR 52 (July 1, 1989).
- i) United States Environmental Protection Agency, Washington, D.C., EPA-340/1-86-016.
- j) United States Environmental Protection Agency, Washington D.C., EPA-450/3-84-019.
- k) United States Environmental Protection Agency, Washington D.C., EPA-340/1-88-003.
- l) United States Environmental Protection Agency, Washington D.C., EPA-450/3-88-018.
- m) United States Environmental Protection Agency, Washington, D.C., EPA-450/2-78-029.
- n) United States Environmental Protection Agency, Washington, D.C., EPA-450/2-78-051.
- o) United States Environmental Protection Agency, Washington, D.C., EPA-450/3-82-009.

## SUBPART B: ORGANIC EMISSIONS FROM STORAGE AND LOADING OPERATIONS

## Section 219.121 Storage Containers

No person shall cause or allow the storage of any VOL with a vapor pressure of 17.24 kPa (2.5 psia) or greater at 294.3°K (70°F) or any gaseous organic material in any stationary tank, reservoir or other container of more than 151 cubic meters (40,000 gal) capacity unless such tank, reservoir or other container:

- a) Is a pressure tank capable of withstanding the vapor pressure of such liquid or the pressure of the gas, so as to prevent vapor or gas loss to the atmosphere at all times; or,
- b) Is designed and equipped with one of the following vapor loss control devices:
  - 1) A floating roof which rests on the surface of the VOL and is equipped with a closure seal or seals between the roof edge and

the tank wall. Such floating roof shall not be permitted if the VOL has a vapor pressure of 86.19 kPa (12.5 psia) or greater at 294.3°K (70°F). No person shall cause or allow the emission of air contaminants into the atmosphere from any gauging or sampling devices attached to such tanks, except during sampling or maintenance operations.

- 2) A vapor recovery system consisting of:
  - A) A vapor gathering system capable of collecting 85% or more of the uncontrolled VOM that would be otherwise emitted to the atmosphere; and,
  - B) A vapor disposal system capable of processing such VOM so as to prevent its emission to the atmosphere. No person shall cause or allow the emission of air contaminants into the atmosphere from any gauging or sampling devices attached to such tank, reservoir or other container except during sampling.
- 3) Other equipment or means of equal efficiency approved by the Agency according to the provisions of 35 Ill. Adm. Code 201, and further processed consistent with Section 219.108.

## Section 219.122 Loading Operations

- a) No person shall cause or allow the discharge of more than 3.6 kg/hr (8 lbs/hr) of organic material into the atmosphere during the loading of any organic material from the aggregate loading pipes of any loading facility having through-put of greater than 151 cubic meters per day (40,000 gal/day) into any railroad tank car, tank truck or trailer unless such loading facility is equipped with submerged loading pipes, submerged fill or a device that is equally effective in controlling emissions and is approved by the Agency according to the provisions of 35 Ill. Adm. Code 201, and further processed consistent with Section 219.108.
- b) No person shall cause or allow the loading of any organic material into any stationary tank having a storage capacity of greater than 946 l (250 gal), unless such tank is equipped with a permanent submerged loading pipe, submerged fill or an equivalent device approved by the Agency according to the provisions of 35 Ill. Adm. Code 201, and further processed consistent with Section 219.108, or unless such tank is a pressure tank as described in Section 219.121(a) or is fitted with a recovery system as described in Section 219.121(b)(2).
- c) Exception: If no odor nuisance exists the limitations of this



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Section shall only apply to the loading of VOL with a vapor pressure of 17.24 kPa (2.5 psia) or greater at 294.3°K (70°F).

## Section 219.123 Petroleum Liquid Storage Tanks

- a) The requirements of subsection (b) shall not apply to any stationary storage tank:

- 1) Equipped before January 1, 1979 with one of the vapor loss control devices specified in Section 219.121(b), except Section 219.121(b)(1);
- 2) With a capacity of less than 151.42 cubic meters (40,000 gal);
- 3) With a capacity of less than 1,600 cubic meters (422,400 gal) and used to store produced crude oil and condensate prior to custody transfer;
- 4) With a capacity of less than 1,430 cubic meters (378,000 gal) and used to store produced oil or condensate in crude oil gathering;

- 5) Subject to new source performance standards for storage vessels of petroleum liquid, 35 Ill. Adm. Code 230;

- 6) In which volatile petroleum liquid is not stored; or

- 7) Which is a pressure tank as described in Section 219.121(a).

- b) Subject to subsection (a) no owner or operator of a stationary storage tank shall cause or allow the storage of any VOL in the tank unless:

- 1) The tank is equipped with one of the vapor loss control devices specified in Section 219.121(b);

- 2) There are no visible holes, tears or other defects in the seal or any seal fabric or material of any floating roof;

- 3) All openings of any floating roof deck, except stub drains, are equipped with covers, lids or seals such that:

- A) The cover, lid or seal is in the closed position at all times except when petroleum liquid is transferred to or from the tank;

- B) Automatic bleeder vents are closed at all times except when the roof is floated off or landed on the roof leg supports; and

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- C) Rim vents, if provided, are set to open when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting;

- 4) Routine inspections of floating roof seals are conducted through roof hatches once every six months;

- 5) A complete inspection of the cover and seal of any floating roof tank is made whenever the tank is emptied for reasons other than the transfer of petroleum liquid during the normal operation of the tank, or whenever repairs are made as a result of any semi-annual inspection or incidence of roof damage or defect; and

- 6) A record of the results of each inspection conducted under subsection (b)(4) or (b)(5) is maintained.

- c) Owners and operators of petroleum liquid storage tanks were required to have compliance schedules as summarized in Appendix C, to 35 Ill. Adm. Code 215.

## Section 219.124 External Floating Roofs

- a) In addition to meeting the requirements of Section 219.123(b), no owner or operator of a stationary storage tank equipped with an external floating roof shall cause or allow the storage of any volatile petroleum liquid in the tank unless:

- 1) The tank has been fitted with a continuous secondary seal extending from the floating roof to the tank wall (rim mounted secondary seal) or any other device which controls VOM emissions with an effectiveness equal to or greater than a rim mounted secondary seal;

- 2) Each seal closure device meets the following requirements:

- A) The seal is intact and uniformly in place around the circumference of the floating roof between the floating roof and tank wall; and

- B) The accumulated area of gaps exceeding 0.32 centimeter (1/8 inch) in width between the secondary seal and the tank wall shall not exceed 21.2 square centimeters per meter of tank diameter (1.0 square inches per foot of tank diameter).

- 3) Emergency roof drains are provided with slotted membrane fabric covers or equivalent covers across at least 90 percent of the area of the opening;



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- 4) Openings are equipped with projections into the tank which remain below the liquid surface at all times;
  - 5) Inspections are conducted prior to May 1 of each year to insure compliance with subsection (a);
  - 6) The secondary seal gap is measured prior to May 1 of each year;
  - 7) Records of the types of volatile petroleum liquid stored, the maximum true vapor pressure of the liquid as stored, the results of the inspections and the results of the secondary seal gap measurements are maintained and available to the Agency, upon verbal or written request, at any reasonable time for a minimum of two years after the date on which the record was made.
- b) Subsection (a) does not apply to any stationary storage tank equipped with an external floating roof:
- 1) Exempted under Section 219.123(a)(2) through 219.123(a)(6);
  - 2) Of welded construction equipped with a metallic type shoe seal having a secondary seal from the top of the shoe seal to the tank wall (shoe-mounted secondary seal);
  - 3) Of welded construction equipped with a metallic type shoe seal, a liquid-mounted foam seal, a liquid-mounted liquid-filled-type seal, or other closure device of equivalent control efficiency approved by the Agency in which a petroleum liquid with a true vapor pressure less than 27.6 kPa (4.0 psia) at 294.3°K (70°F) is stored; or
  - 4) Used to store crude oil with a pour point of 50°F or higher as determined by ASTM Standard D97-66 incorporated by reference in Section 219.112.

## Section 218.125 Compliance Dates

Every owner or operator of an emission source subject to 35 Ill. Adm. Code 215, Subpart B as of December 31, 1987 shall have complied with its standards and limitations by December 31, 1987.

## Section 219.126 Compliance Plan

- a) The owner or operator of an emission source previously subject to Section 215.125 shall have submitted to the Agency a compliance plan as required by 35 Ill. Adm. Code 201.241, including a project completion schedule where applicable, no later than April 21, 1983.

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- b) Unless the submitted compliance plan or schedule was disapproved by the Agency, the owner or operator of a facility or emission source subject to the rules specified in subsection (a) may operate the emission source according to the plan and schedule as submitted.
- c) The plan and schedule shall meet the requirements of 35 Ill. Adm. Code 201.241 including specific interim dates as required in 35 Ill. Adm. Code 201.242.

## SUBPART C: ORGANIC EMISSIONS FROM MISCELLANEOUS EQUIPMENT

## Section 219.141 Separation Operations

- a) No person shall use any single or multiple compartment effluent water separator which receives effluent water containing 757 l/day (200 gal/day) or more of organic material from any equipment processing, refining, treating, storing or handling organic material unless such effluent water separator is equipped with air pollution control equipment capable of reducing by 85 percent or more the uncontrolled organic material emitted to the atmosphere. Exception: If no odor nuisance exists the limitations of this subsection shall not apply if the vapor pressure of the organic material is below 17.24 kPa (2.5 psia) at 294.3°K (70°F).

- b) Subsection (a) shall not apply to water and crude oil separation in the production of Illinois crude oil, if the vapor pressure of such crude oil is less than 34.5 kPa (5 psia).

## Section 219.142 Pumps and Compressors

No person shall cause or allow the discharge of more than 32.8 ml (2 cu in) of VOL with vapor pressure of 17.24 kPa (2.5 psia) or greater at 294.3°K (70°F) into the atmosphere from any pump or compressor in any 15 minute period at standard conditions.

## Section 219.143 Vapor Blowdown

No person shall cause or allow the emission of organic material into the atmosphere from any vapor blowdown system or any safety relief valve, except such safety relief valves not capable of causing an excessive release, unless such emission is controlled:

- a) To 10 ppm equivalent methane (molecular weight 16.0) or less; or,
- b) By combustion in a smokeless flare; or,
- c) By other air pollution control equipment approved by the Agency according to the provisions of 35 Ill. Adm. Code 201, and further processed consistent with Section 219.108.



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## Section 219.144 Safety Relief Valves

Section 219.143 shall not apply to any set of unregulated safety relief valves capable of causing excessive releases, provided the owner or operator thereof, by October 1, 1972, supplied the Agency with the following:

- a) A historical record of each such set (or, if such records were unavailable, of similar sets which, by virtue of operation under similar circumstances, may reasonably have been presumed to have the same or greater frequency of excessive releases) for a three-year period immediately preceding October 1, 1972, indicating:
  - 1) Dates on which excessive releases occurred from each such set; and,
  - 2) Duration in minutes of each such excessive release; and,
  - 3) Quantities (in pounds) of mercaptans and/or hydrogen sulfide emitted into the atmosphere during each such excessive release.
- b) Proof, using such three-year historical records, that no excessive release is likely to occur from any such set either alone or in combination with such excessive releases from other sets owned or operated by the same person and located within a ten-mile radius from the center point of any such set, more frequently than 3 times in any 12 month period;
- c) Accurate maintenance records pursuant to the requirements of subsection (a); and,
- d) Proof, at three-year intervals, using such three-year historical records, that such set conforms to the requirements of subsection (c).

## SUBPART E: SOLVENT CLEANING

## Section 219.181 Solvent Cleaning in General

The requirements of this Subpart shall apply to all cold cleaning, open top vapor degreasing, and conveyorized degreasing operations.

## Section 219.182 Cold Cleaning

- a) Operating Procedures: No person shall operate a cold cleaning degreaser unless:
  - 1) Waste solvent is stored in covered containers only and not disposed of in such a manner that more than 20% of the waste solvent (by weight) is allowed to evaporate into the atmosphere;

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- 2) The cover of the degreaser is closed when parts are not being handled; and
- 3) Parts are drained until dripping ceases.
- b) Equipment Requirements: No person shall operate a cold cleaning degreaser unless:
  - 1) The degreaser is equipped with a cover which is closed whenever parts are not being handled in the cleaner. The cover shall be designed to be easily operated with one hand or with the mechanical assistance of springs, counter-weights or a powered system if:
    - A) The solvent vapor pressure is greater than 2 kPa (15 mmHg or 0.3 psi) measured at 38°C (100°F);
    - B) The solvent is agitated; or
    - C) The solvent is heated above ambient room temperature.
  - 2) The degreaser is equipped with a facility for draining cleaned parts. The drainage facility shall be constructed so that parts are enclosed under the cover while draining unless:
    - A) The solvent vapor pressure is less than 4.3 kPa (32 mmHg or 0.6 psi) measured at 38°C (100°F); or
    - B) An internal drainage facility cannot be fitted into the cleaning system, in which case the drainage facility may be external.
  - 3) The degreaser is equipped with one of the following control devices if the vapor pressure of the solvent is greater than 4.3 kPa (32 mmHg or 0.6 psi) measured at 38°C (100°F) or if the solvent is heated above 50°C (120°F) or its boiling point:
    - A) A freeboard height of 7/10 of the inside width of the tank or 91 cm (36 in), whichever is less; or
    - B) Any other equipment or system of equivalent emission control as approved by the Agency and further processed consistent with Section 219.108. Such a system may include a water cover, refrigerated chiller or carbon adsorber.
  - 4) A permanent conspicuous label summarizing the operating procedure is affixed to the degreaser; and



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- 5) If a solvent spray is used, the degreaser is equipped with a solid fluid stream spray, rather than a fine, atomized or shower spray.

## Section 219.183 Open Top Vapor Degreasing

- a) Operating Requirements: No person shall operate an open top vapor degreaser unless:

- 1) The cover of the degreaser is closed when workloads are not being processed through the degreaser;
- 2) Solvent carryout emissions are minimized by:
  - A) Racking parts to allow complete drainage;
  - B) Moving parts in and out of the degreaser at less than 3.3 m/min (11 ft/min);
  - C) Holding the parts in the vapor zone until condensation ceases;
  - D) Tipping out any pools of solvent on the cleaned parts before removal from the vapor zone; and,
  - E) Allowing parts to dry within the degreaser until visually dry.

- 3) Porous or absorbent materials, such as cloth, leather, wood or rope are not degreased;
- 4) Less than half of the degreaser's open top area is occupied with a workload;
- 5) The degreaser is not loaded to the point where the vapor level would drop more than 10 cm (4 in) when the workload is removed from the vapor zone;
- 6) Spraying is done below the vapor level only;
- 7) Solvent leaks are repaired immediately;
- 8) Waste solvent is stored in covered containers only and not disposed of in such a manner that more than 20% of the waste solvent (by weight) is allowed to evaporate into the atmosphere;
- 9) Water is not visually detectable in solvent exiting from the water separator; and

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- 10) Exhaust ventilation exceeding 20 cubic meters per minute per square meter (65 cubic feet per minute per square foot) of degreaser open area is not used, unless necessary to meet the requirements of the Occupational Safety and Health Act (29 U.S.C. Section 651 et seq.).

- b) Equipment Requirements: No person shall operate an open top vapor degreaser unless:
- 1) The degreaser is equipped with a cover designed to open and close easily without disturbing the vapor zone;
  - 2) The degreaser is equipped with the following switches:
    - A) A device which shuts off the sump heat source if the amount of condenser coolant is not sufficient to maintain the designed vapor level; and
    - B) A device which shuts off the spray pump if the vapor level drops more than 10 cm (4 in) below the bottom condenser coil; and
    - C) A device which shuts off the sump heat source when the vapor level exceeds the design level.
  - 3) A permanent conspicuous label summarizing the operating procedure is affixed to the degreaser;
  - 4) The degreaser is equipped with one of the following devices:
    - A) A freeboard height of 3/4 of the inside width of the degreaser tank or 91 cm (36 in), whichever is less; and if the degreaser opening is greater than 1 square meter (10.8 ft<sup>2</sup>), a powered or mechanically assisted cover; or
    - B) Any other equipment or system of equivalent emission control as approved by the Agency and further processed consistent with Section 219.108. Such equipment or system may include a refrigerated chiller, an enclosed design or a carbon adsorption system.

## Section 219.184 ConveyORIZED Degreasing

- a) Operating Requirements: No person shall operate a conveyORIZED degreaser unless:
- 1) Exhaust ventilation exceeding 20 cubic meters per minute per square meter (65 cubic feet per minute per square foot) of area



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of loading and unloading opening is not used, unless necessary to meet the requirements of the Occupational Safety and Health Act (29 U.S.C. Section 651 et seq.).

- 2) Solvent carryout emissions are minimized by:
    - A) Racking parts for best drainage; and
    - B) Maintaining the vertical conveyor speed at less than 3.3 m/min (11 ft/min);
  - 3) Waste solvent is stored in covered containers only and not disposed of in such a manner that more than 20% of the waste solvent (by weight) is allowed to evaporate into the atmosphere;
  - 4) Solvent leaks are repaired immediately;
  - 5) Water is not visually detectable in solvent exiting from the water separator; and
  - 6) Downtime covers are placed over entrances and exits of conveyORIZED degreasers immediately after the conveyors and exhausts are shut down and not removed until just before start-up.
- b) Equipment Requirements: No person shall operate a conveyORIZED degreaser unless:

- 1) The degreaser is equipped with a drying tunnel, rotating (tumbling) basket or other equipment sufficient to prevent cleaned parts from carrying out solvent liquid or vapor;
- 2) The degreaser is equipped with the following switches:
  - A) A device which shuts off the sump heat source if the amount of condenser coolant is not sufficient to maintain the designed vapor level;
  - B) A device which shuts off the spray pump or the conveyor if the vapor level drops more than 10 cm (4 in) below the bottom condenser coil; and
  - C) A device which shuts off the sump heat source when the vapor level exceeds the design level;
- 3) The degreaser is equipped with openings for entrances and exits that silhouette workloads so that the average clearance between the parts and the edge of the degreaser opening is less than 10 cm (4 in) or less than 10 percent of the width of the opening;

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- 4) The degreaser is equipped with downtime covers for closing off entrances and exits when the degreaser is shut down; and
- 5) The degreaser is equipped with one of the following control devices, if the air/vapor interface is larger than 2.0 square meters (21.6 ft<sup>2</sup>):
  - A) A carbon adsorption system with ventilation greater than or equal to 15 cubic meters per minute per square meter (50 cubic feet per minute per square foot) of air/vapor area when downtime covers are open, and exhausting less than 25 ppm of solvent by volume averaged over a complete adsorption cycle; or
  - B) Any other equipment or system of equivalent emission control as approved by the Agency, and further processed consistent with Section 219.108. Such equipment or system may include a refrigerated chiller.

## Section 219.185

## Compliance Schedule

Every owner or operator of an emission source which was previously exempt from the requirements of Subpart E of 35 Ill. Adm. Code 215 (Sections 215.182-215.184) because it satisfied the criteria in either 35 Ill. Adm. Code 215.181(a) or 35 Ill. Adm. Code 215.181(b), shall comply with the requirements of this Subpart on and after a date consistent with Section 219.106. A source which did not satisfy the criteria in either 35 Ill. Adm. Code 215.181(a) or 35 Ill. Adm. Code 215.181(b) shall comply with the requirements of this Subpart upon adoption.

## Section 219.186

## Test Methods

The following test methods shall be used to demonstrate compliance with this Subpart:

- a) Vapor pressures shall be determined by using the procedure specified in Section 219.110.
- b) Exhaust ventilation rates shall be determined by using the procedures specified in Section 219.105(f)(3).
- c) The performance of control devices shall be determined by using the procedures specified in Section 219.105(f).

## SUBPART F: COATING OPERATIONS

## Section 219.204 Emission Limitations for Manufacturing Plants

Except as provided in Section 219.208, no owner or operator of a coating line



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shall apply at any time any coating in which the VOM content exceeds the following emission limitations for the specified coating. The following emission limitations are expressed in units of VOM per volume of coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied at each coating applicator, except where noted. Compounds which are specifically exempted from the definition of VOM should be treated as water for the purpose of calculating the "less water" part of the coating composition.

Compliance with this Subpart must be demonstrated through the applicable coating analysis test methods and procedures specified in Section 219.105(a) and the recordkeeping and reporting requirements specified in Section 219.211(c). (Note: The equation presented in Section 219.206 shall be used to calculate emission limitations for determining compliance by add-on controls, credits for transfer efficiency, emissions trades and cross-line averaging.) The emission limitations are as follows:

a) Automobile or Light-Duty Truck Coating	kg/l	lb/gal
1) Prime coat	0.14	(1.2)
2) Prime surfacer coat	0.34	(2.8)

(Note: The prime surfacer coat limitation is based upon a transfer efficiency of 30 percent. The use of transfer efficiency credits can be allowed only if approved by the Agency and approved by the USEPA as a SIP revision.)

3) Topcoat	1.81	(15.1)
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(Note: The topcoat limitation is in units of kg (lbs) of VOM per 1 (gal) of coating solids deposited. Compliance with the limitation shall be based on the daily-weighted average VOM content from the entire topcoat operation (all topcoat spray booths, flash-off areas and bake ovens). Compliance shall be demonstrated in accordance with the topcoat protocol for automobiles and light-duty trucks referenced in Section 219.105(b). Section 219.205 does not apply to the topcoat limitation.) At least 180 days prior to the initial compliance date, the owner or operator of a coating line subject to the topcoat limitation shall have submitted to the USEPA a detailed proposal specifying the method of demonstrating compliance with the protocol. The proposal shall have included, at a minimum, a comprehensive plan (including a rationale) for determining the transfer efficiency at each booth through the use of in-plant, or pilot testing; the selection of coatings to be tested (for the purpose of determining transfer efficiency) including the rationale for coating groupings; and the method for determining the analytic VOM content of as applied

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coatings and the formulation solvent content of as applied coatings. Upon approval of the protocol by the USEPA, the source may proceed with the compliance demonstration.

4) Final repair coat	kg/l	lb/gal
	0.58	(4.8)

b) Can Coating	kg/l	lb/gal
1) Sheet basecoat and overvarnish	0.34	(2.8)
2) Exterior basecoat and overvarnish	0.34	(2.8)
3) Interior body spray coat	0.51	(4.2)
4) Exterior end coat	0.51	(4.2)
5) Side seam spray coat	0.66	(5.5)
6) End sealing compound coat	0.44	(3.7)

c) Paper Coating	kg/l	lb/gal
	0.35	(2.9)

(Note: The paper coating limitation shall not apply to any owner or operator of any paper coating line on which printing is performed if the paper coating line complies with the emissions limitations in Subpart H: Printing and Publishing, Sections 219.401 through 219.404.)

d) Coil Coating	kg/l	lb/gal
	0.31	(2.6)
e) Fabric Coating	0.35	(2.9)
f) Vinyl Coating	0.45	(3.8)
g) Metal Furniture Coating	0.36	(3.0)
h) Large Appliance Coating	0.34	(2.8)

(Note: The limitation shall not apply to the use of quick-drying lacquers for repair of scratches and nicks that occur during



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assembly, provided that the volume of coating does not exceed 0.95 l (1 quart) in any one rolling eight-hour period.)

kg/l lb/gal

(1.7)

i) Magnet Wire Coating

0.20

j) Miscellaneous Metal Parts and Products Coating

0.52 (4.3)

1) Clear coating

0.42 (3.5)

2) Air-dried coating

0.42 (3.5)

3) Extreme performance coating

0.36 (3.0)

4) All other coatings

kg/l lb/gal

k) Heavy Off-Highway Vehicle Products Coating

0.42 (3.5)

1) Extreme performance prime coat

0.42 (3.5)

2) Extreme performance top-coat (air dried)

0.42 (3.5)

3) Final repair coat (air dried)

4) All other coatings are subject to the emission limitations for miscellaneous metal parts and products coatings in subsection (j) above.

kg/l lb/gal

(5.6)

1) Wood Furniture Coating

0.67 (5.6)

1) Clear topcoat

0.56 (4.7)

2) Opaque stain

0.60 (5.0)

3) Pigmented coat

0.67 (5.6)

4) Repair coat

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5) Sealer 0.67 (5.6)

6) Semi-transparent stain 0.79 (6.6)

7) Wash coat 0.73 (6.1)

(Note: An owner or operator of a wood furniture coating operation subject to this Section shall apply all coatings, with the exception of no more than 37.8 l (10 gal) of coating per day used for touch-up and repair operations, using one or more of the following application systems: airless spray application system, air-assisted airless spray application system, electrostatic spray application system, electrostatic bell or disc spray application system, heated airless spray application system, roller coating, brush or wipe coating application system, or dip coating application system.)

m) Existing Diesel-Electric Locomotive Coating Lines in Cook County

kg/l lb/gal

0.42 (3.5)

1) Extreme performance prime coat

0.42 (3.5)

2) Extreme performance top-coat (air dried)

0.42 (3.5)

3) Final repair coat (air dried)

0.72 (6.0)

4) High-temperature aluminum coating

0.36 (3.0)

5) All other coatings

## Section 219.205 Daily-Weighted Average Limitations

No owner or operator of a coating line subject to the limitations of Section 219.204 and complying by means of this Section shall operate the subject coating line unless the owner or operator has demonstrated compliance with subsection (a), (b), (c), (d), (e) or (f) (depending upon the source category) through the applicable coating analysis test methods and procedures specified in Section 219.105(a) and the recordkeeping and reporting requirements specified in Section 219.211(d):

a) No owner or operator of a coating line subject to only one of the limitations from among Section 219.204(a)(1), (a)(2), (a)(4), (c), (d), (e), (f), (g), (h), or (i) shall apply coatings on any such coating line, during any day, whose daily-weighted average VOM



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content exceeds the emission limitation to which the coatings are subject.

- b) No owner or operator of a miscellaneous metal parts and products coating line subject to the limitations of Section 219.204(j) shall apply coatings to miscellaneous metal parts or products on the subject coating line unless the requirements in subsection (b)(1) or (b)(2) below are met.

- 1) For each coating line which applies multiple coatings, all of which are subject to the same numerical emission limitation within Section 219.204(j) above, during the same day (e.g., all coatings used on the line are subject to 0.42 kg/l [3.5 lbs/gal]), the daily-weighted average VOM content shall not exceed the coating VOM content limit corresponding to the category of coating used, or

- 2) For each coating line which applies coatings from more than one of the four coating categories in Section 219.204(j) above, during the same day, the owner or operator shall have a site-specific proposal approved by the Agency and approved by the USEPA as a SIP revision. To receive approval, the requirements of USEPA's Emissions Trading Policy Statement (and related policy) must be satisfied.

- c) No owner or operator of a can coating facility subject to the limitations of Section 215.204(b) shall operate the subject coating facility using a coating with a VOM content in excess of the limitations specified in Section 215.204(b) unless all of the following requirements are met:

- 1) An alternative daily emission limitation shall be determined according to subsection (c)(2) below. Actual daily emissions shall never exceed the alternative daily emission limitation and shall be calculated by use of the following equation.

$$E_a = \sum_{i=1}^n V_i C_i$$

where:

$E_a$  = Actual VOM emissions for the day in units of kg/day (lbs/day),

$i$  = Subscript denoting a specific coating applied,

$n$  = Total number of coatings applied in the can coating operation,

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$V_i$  = Volume of each coating applied for the day in units of l/day (gal/day) of coating (minus water and any compounds which are specifically exempted from the definition of VOM), and

$C_i$  = The VOM content of each coating as applied in units of kg VOM/l (lbs VOM/gal) of coating (minus water and any compounds which are specifically exempted from the definition of VOM).

- 2) The alternative daily emission limitation ( $A_d$ ) shall be determined on a daily basis as follows:

$$A_d = \sum_{i=1}^n V_i L_i \frac{(D_i - C_i)}{(D_i - L_i)}$$

where:

$A_d$  = The VOM emissions allowed for the day in units of kg/day (lbs/day),

$i$  = Subscript denoting a specific coating applied,

$n$  = Total number of surface coatings applied in the can coating operation,

$C_i$  = The VOM content of each surface coating as applied in units of kg VOM/l (lbs VOM/gal) of coating (minus water and any compounds which are specifically exempted from the definition of VOM),

$D_i$  = The density of VOM in each coating applied. For the purposes of calculating  $A_d$ , the density is 0.882 kg VOM/l VOM (7.36 lbs VOM/gal VOM),

$V_i$  = Volume of each surface coating applied for the day in units of l (gal) of coating (minus water and any compounds which are specifically exempted from the definition of VOM),.

$L_i$  = The VOM emission limitation for each surface coating applied as specified in Section 219.204(b) in units of kg VOM/l (lbs VOM/gal) of coating (minus water and any compounds which are specifically exempted from the definition of VOM).

- d) No owner or operator of a heavy off-highway vehicle products coating line subject to the limitations of Section 219.204(k) shall apply



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coatings to heavy off-highway vehicle products on the subject coating line unless the requirements of subsection (d)(1) or (d)(2) below are met.

- 1) For each coating line which applies multiple coatings, all of which are subject to the same numerical emission limitation within Section 219.204(k) above, during the same day (e.g., all coatings used on the line are subject to 0.42 kg/l [3.5 lbs/gal]), the daily-weighted average VOM content shall not exceed the coating VOM content limit corresponding to the category of coating used, or
- 2) For each coating line which applies coatings subject to more than one numerical emission limitation in Section 219.204(k) above, during the same day, the owner or operator shall have a site specific proposal approved by the Agency and approved by the USEPA as a SIP revision. To receive approval, the requirements of USEPA's Emissions Trading Policy Statement (and related policy) must be satisfied.

e) No owner or operator of a wood furniture coating line subject to the limitations of Section 219.204(l) shall apply coatings to wood furniture on the subject coating line unless the requirements of subsection (e)(1) or (e)(2), in addition to the requirements specified in the note to Section 219.204(l), are met.

- 1) For each coating line which applies multiple coatings, all of which are subject to the same numerical emission limitation within Section 219.204(l) above, during the same day (e.g., all coatings used on the line are subject to 0.67 kg/l [5.6 lbs/gal]), the daily-weighted average VOM content shall not exceed the coating VOM content limit corresponding to the category of coating used, or

2) For each coating line which applies coatings subject to more than one numerical emission limitation in Section 219.204(l) above, during the same day, the owner or operator shall have a site specific proposal approved by the Agency and approved by the USEPA as a SIP revision. To receive approval, the requirements of USEPA's Emissions Trading Policy Statement (and related policy) must be satisfied.

f) No owner or operator of an existing diesel-electric locomotive coating line subject to the limitations of Section 219.204(m) shall apply coatings to diesel-electric locomotives on the subject coating line unless the requirements of subsection (b)(1) or (b)(2) are met.

- 1) For each coating line which applies multiple coatings, all of which are subject to the same numerical emission limitation

within Section 219.204(m) above, during the same day (e.g., all coatings used on the line are subject to 0.42 kg/l [3.5 lbs/gal]), the daily-weighted average VOM content shall not exceed the coating VOM content limit corresponding to the category of coating used, or

- 2) For each coating line which applies coatings subject to more than one numerical emission limitation in Section 219.204(m) above, during the same day, the owner or operator shall have a site specific proposal approved by the Agency and approved by the USEPA as a SIP revision. To receive approval, the requirements of USEPA's Emissions Trading Policy Statement (and related policy) must be satisfied.

Section 219.206 Solids Basis Calculation

Limitations in terms of kg (lbs) of VOM emissions per 1 (gal) of solids as applied at each coating applicator shall be determined by the following equation:

$$S = \frac{C}{1 - (C/D)}$$

where:

S = The limitation on VOM emissions in terms of kg VOM/l (lbs VOM/gal) of solids,

C = The limitation on VOM emissions in terms of kg/l (lbs/gal) of coating (minus water and any compounds which are specifically excluded from the definition of VOM) specified in Section 219.204,

D = The density of VOM in the coating. For the purposes of calculating S, the density is 0.882 kg VOM/l VOM (7.36 lbs VOM/gal VOM).

Section 219.207 Alternative Emission Limitations

- a) Any owner or operator of a coating line subject to Section 219.204 may comply with this Section, rather than with Section 219.204, if a capture system and control device are operated at all times and the owner or operator demonstrates compliance with subsections (c), (d), (e), (f), (g) or (h) (depending upon the source category) through the applicable coating analysis and capture system and control device efficiency test methods and procedures specified in Section 219.105 and the recordkeeping and reporting requirements specified in Section 219.211(e); and the control device is equipped with the applicable



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monitoring equipment specified in Section 219.105(d) and the monitoring equipment is installed, calibrated, operated and maintained according to vendor specifications at all times the control device is in use. A capture system and control device, which does not demonstrate compliance with subsection (c), (d), (e), (f), (g) or (h) may be used as an alternative to compliance with Section 219.204 only if the alternative is approved by the Agency and approved by the USEPA as a SIP revision.

## b) Alternative Add-On Control Methodologies

- 1) The coating line is equipped with a capture system and control device that provides 81 percent reduction in the overall emissions of VOM from the coating line and the control device has a 90 percent efficiency, or
- 2) The system used to control VOM from the coating line is demonstrated to have an overall efficiency sufficient to limit VOM emissions to no more than what is allowed under Section 219.204. Use of any control system other than an afterburner, carbon adsorption, condensation, or absorption scrubber system can be allowed only if approved by the Agency and approved by the USEPA as a SIP revision. The use of transfer efficiency credits can be allowed only if approved by the Agency and approved by the USEPA as a SIP revision. Baseline transfer efficiencies and transfer efficiency test methods must be approved by the Agency and the USEPA.

Such overall efficiency is to be determined as follows:

- A) obtain the emission limitation from the appropriate subsection in Section 219.204,
- B) calculate "S" according to the equation in Section 219.206,
- 3) calculate the overall efficiency required according to Section 219.105(e). For the purposes of calculating this value, according to the equation in Section 219.105(e)(2), VOM, is equal to the value of "S" as determined above in subsection (b)(2)(B).

- c) No owner or operator of a coating line subject to only one of the emission limitations from among Section 219.204(a)(1), (a)(2), (a)(4), (c), (d), (e), (f), (g), (h) or (i) and equipped with a capture system and control device shall operate the subject coating line unless the requirements in subsection (b)(1) or (b)(2) above are met. No owner or operator of a coating line subject to Section 219.204(a)(3) and equipped with a capture system and control device

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shall operate the coating line unless the owner or operator demonstrates compliance with the topcoat limitation in accordance with the topcoat protocol for automobile or light-duty trucks referenced in Section 219.105(b).

- d) No owner or operator of a miscellaneous metal parts and products coating line which applies one or more coatings during the same day, all of which are subject to the same numerical emission limitation within Section 219.204(j) (e.g., all coatings used on the line are subject to 0.42 kg/l [3.5 lbs/gal]), and which is equipped with a capture system and control device shall operate the subject coating line unless the requirements in subsection (b)(1) or (b)(2) above are met.
- e) No owner or operator of a heavy off-highway vehicle products coating line which applies one or more coatings during the same day, all of which are subject to the same numerical emission limitation within Section 219.204(k) (e.g., all coatings used on the line are subject to 0.42 kg/l [3.5 lbs/gal]), and which is equipped with a capture system and control device shall operate the subject coating line unless the requirements in subsection (b)(1) or (b)(2) above are met.
- f) No owner or operator of an existing diesel-electric locomotive coating line which applies one or more coatings during the same day, all of which are subject to the same numerical emission limitation within Section 219.204(m) (e.g., all coatings used on the line are subject to 0.42 kg/l [3.5 lbs/gal]), and which is equipped with a capture system and control device shall operate the subject coating line unless the requirements in subsection (b)(1) or (b)(2) are met.
- g) No owner or operator of a wood furniture coating line which applies one or more coatings during the same day, all of which are subject to the same numerical emission limitation within Section 219.204(l) (e.g., all coatings used on the line are subject to 0.67 kg/l [5.6 lbs/gal]), and which is equipped with a capture system and control device shall operate the subject coating line unless the requirements in subsection (b)(1) or (b)(2) are met. If compliance is achieved by meeting the requirements in subsection (b)(2), then the provisions in the note to Section 219.204(l) must also be met.
- h) No owner or operator of a can coating facility and equipped with a capture system and control device shall operate the subject coating facility unless the requirements in subsection (h)(1) or (h)(2) below are met.
  - 1) An alternative daily emission limitation shall be determined according to Section 219.205(c)(2). Actual daily emissions shall never exceed the alternative daily emission limitation and shall be calculated by use of the following equation:



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$$E_d = \sum_{i=1}^n V_i C_i (1-F_i)$$

where:

$E_d$  = Actual VOM emissions for the day in units of kg/day (lbs/day).

$i$  = Subscript denoting the specific coating applied.

$n$  = Total number of surface coatings as applied in the can coating operation.

$V_i$  = Volume of each coating as applied for the day in units of l/day (gal/day) of coating (minus water and any compounds which are specifically exempted from the definition of VOM).

$C_i$  = The VOM content of each coating as applied in units of kg VOM/l (lbs VOM/gal) of coating (minus water and any compounds which are specifically exempted from the definition of VOM), and

$F_i$  = Fraction, by weight, of VOM emissions from the surface coating, reduced or prevented from being emitted to the ambient air. This is the overall efficiency of the capture system and control device.

- 2) The coating line is equipped with a capture system and control device that provide 75 percent reduction in the overall emissions of VOM from the coating line and the control device has a 90 percent efficiency.

## Section 219.208 Exemptions From Emission Limitations

- a) Exemptions for all source categories except wood furniture coating. The limitations of this Subpart shall not apply to coating lines within a facility that otherwise would be subject to the same subsection of Section 219.204 (because they belong to the same source category, e.g. can coating), provided that combined actual emissions of VOM from all lines at the facility subject to that subsection never exceed 6.8 kg/day (15 lbs/day) before the application of capture systems and control devices. (For example, can coating lines within a plant would not be subject to the limitations of Section 219.204(b) if the combined actual emissions of VOM from the can coating lines never exceed 6.8 kg/day (15 lbs/day) before the application of capture systems and control devices.) Volatile

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organic material emissions from heavy off-highway vehicle products coating lines must be combined with VOM emissions from miscellaneous metal parts and products coating lines to determine applicability. Any owner or operator of a coating facility shall comply with the applicable coating analysis test methods and procedures specified in Section 219.105(a) and the recordkeeping and reporting requirements specified in Section 219.211(a) if total VOM emissions from the subject coating lines are always less than or equal to 6.8 kg/day (15 lbs/day) before the application of capture systems and control devices and, therefore, are not subject to the limitations of Section 219.204. Once a category of coating lines at a facility is subject to the limitations in Section 219.204, the coating lines are always subject to the limitations in Section 219.204.

## b) Applicability for wood furniture coating

- 1) The limitations of this Subpart shall apply to a plant's wood furniture coating lines if the plant contains process emission sources, not regulated by Subparts B, E, F (excluding Section 219.204(1)), H (excluding Section 219.405), Q, R, S, V, X, Y, or Z of this Part, which as a group both:

- A) have maximum theoretical emissions of 91 Mg (100 tons) or more per calendar year of VOM if no air pollution control equipment were used, and
- B) are not limited to less than 91 Mg (100 tons) of VOM per calendar year if no air pollution control equipment were used, through production or capacity limitations contained in a federally enforceable construction permit or SIP revision.

- 2) If a plant ceases to fulfill the criteria of subsection (b)(1), the limitations of Section 219.204(1) shall continue to apply to any wood furniture coating line which was ever subject to the limitations of Section 219.204(1).

- 3) For the purposes of subsection (b), an emission source shall be considered regulated by a Subpart if it is subject to the limitations of that Subpart. An emission source is not considered regulated by a Subpart if its emissions are below the applicability cutoff level or if the source is covered by an exemption.

- 4) Any owner or operator of a wood furniture coating line to which the limitations of this Subpart are not applicable due to the criteria in subsection (b) shall, upon request by the Agency or the USEPA, submit records to the Agency and the USEPA within 30



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calendar days from the date of the request that document that the coating line is exempt from the limitations of this Subpart.

## Section 219.209 Exemption From General Rule on Use of Organic Material

No owner or operator of a coating line subject to the limitations of Section 219.204 is required to meet the limitations of Subpart G (Section 219.301 or 219.302) of this Part, after the date by which the coating line is required to meet Section 219.204.

## Section 219.210 Compliance Schedule

Every owner or operator of a coating line (of a type included within Section 219.204) shall comply with the requirements of Section 219.204, 219.207 or 219.208 and Section 219.211 in accordance with the appropriate compliance schedule as specified in subsection (a), (b), (c) or (d) below:

- a) No owner or operator of a coating line which is exempt from the limitations of Section 219.204 because of the criteria in Section 219.208(a) shall operate said coating line on or after a date consistent with Section 219.106, unless the owner or operator has complied with, and continues to comply with, Section 219.211(b). Wood furniture coating lines are not subject to Section 219.211(b).
- b) No owner or operator of a coating line complying by means of Section 219.204 shall operate said coating line on or after a date consistent with Section 219.106, unless the owner or operator has complied with, and continues to comply with, Sections 219.204 and 219.211(c).
- c) No owner or operator of a coating line complying by means of Section 219.205 shall operate said coating line on or after a date consistent with Section 219.106, unless the owner or operator has complied with, and continues to comply with, Sections 219.205 and 219.211(d).
- d) No owner or operator of a coating line complying by means of Section 219.207 shall operate said coating line on or after a date consistent with Section 219.106, unless the owner or operator has complied with, and continues to comply with, Sections 219.207 and 219.211(e).

## Section 219.211 Recordkeeping and Reporting

- a) The VOM content of each coating and the efficiency of each capture system and control device shall be determined by the applicable test methods and procedures specified in Section 219.105 to establish the records required under this Section.
- b) Any owner or operator of a coating line which is exempted from the limitations of Section 219.204 because of Section 219.208(a) shall comply with the following:
  - 1) By a date consistent with Section 219.106, the owner or operator of a facility referenced in this subsection shall certify to the Agency that the facility is exempt under the provisions of Section 219.208(a). Such certification shall include:
    - A) A declaration that the facility is exempt from the limitations of Section 219.204 because of Section 219.208(a); and
    - B) Calculations which demonstrate that the combined VOM emissions from all coating lines at the facility never exceed 6.8 kg (15 lbs) per day before the application of capture systems and control devices. The following equation shall be used to calculate total VOM emissions:
 
$$T_e = \sum_{j=1}^m \sum_{i=1}^n (A_i B_i)$$
 where:
      - $T_e$  = Total VOM emissions from coating lines at a facility each day before the application of capture systems and control devices in units of kg/day (lbs/day),
      - $m$  = Number of coating lines at the facility,
      - $j$  = Subscript denoting an individual coating line,
      - $n$  = Number of different coatings as applied each day on each coating line at the facility,
      - $i$  = Subscript denoting an individual coating,
      - $A_i$  = Weight of VOM per volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line at the facility in units of kg VOM/l (lbs VOM/gal), and
      - $B_i$  = Volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line at the facility in units of 1/day (gal/day). The instrument or method by which the owner or operator accurately measured or calculated the volume of each coating as applied on each

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- 1) By a date consistent with Section 219.106, the owner or operator of a facility referenced in this subsection shall certify to the Agency that the facility is exempt under the provisions of Section 219.208(a). Such certification shall include:
  - A) A declaration that the facility is exempt from the limitations of Section 219.204 because of Section 219.208(a); and
  - B) Calculations which demonstrate that the combined VOM emissions from all coating lines at the facility never exceed 6.8 kg (15 lbs) per day before the application of capture systems and control devices. The following equation shall be used to calculate total VOM emissions:
 
$$T_e = \sum_{j=1}^m \sum_{i=1}^n (A_i B_i)$$
 where:
    - $T_e$  = Total VOM emissions from coating lines at a facility each day before the application of capture systems and control devices in units of kg/day (lbs/day),
    - $m$  = Number of coating lines at the facility,
    - $j$  = Subscript denoting an individual coating line,
    - $n$  = Number of different coatings as applied each day on each coating line at the facility,
    - $i$  = Subscript denoting an individual coating,
    - $A_i$  = Weight of VOM per volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line at the facility in units of kg VOM/l (lbs VOM/gal), and
    - $B_i$  = Volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line at the facility in units of 1/day (gal/day). The instrument or method by which the owner or operator accurately measured or calculated the volume of each coating as applied on each



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coating line each day shall be described in the certification to the Agency.

- 2) On and after a date consistent with Section 219.106, the owner or operator of a facility referenced in this subsection shall collect and record all of the following information each day for each coating line and maintain the information at the facility for a period of three years:

- A) The name and identification number of each coating as applied on each coating line.
- B) The weight of VOM per volume and the volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line.
- 3) On and after a date consistent with Section 219.106, the owner or operator of a facility exempted from the limitations of Section 219.204 because of Section 219.208(a) shall notify the Agency of any record showing that total VOM emissions from the coating facility exceed 6.8 kg (15 lbs) in any day before the application of capture systems and control devices by sending a copy of such record to the Agency within 30 days after the exceedance occurs.

- c) Any owner or operator of a coating line subject to the limitations of Section 219.204 and complying by means of Section 219.204 shall comply with the following:

- 1) By a date consistent with Section 219.106, or upon initial start-up of a new coating line, or upon changing the method of compliance from an existing subject coating line from Section 219.205 or Section 219.207 to Section 219.204; the owner or operator of a subject coating line shall certify to the Agency that the coating line will be in compliance with Section 219.204 on and after a date consistent with Section 219.106, or on and after the initial start-up date. Such certification shall include:

- A) The name and identification number of each coating as applied on each coating line.
- B) The weight of VOM per volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line.
- C) For coating lines subject to Section 219.204(a)(3), certification shall include:

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- i) The name and identification number of each coating line which will comply by means of Section 219.204(a)(3).

- ii) The name and identification number of each coating as applied on each coating line.

- iii) The weight of VOM per volume of each coating as applied on each coating line.

- iv) The instrument or method by which the owner or operator will accurately measure or calculate the volume of each coating as applied each day on each coating line.

- v) The method by which the owner or operator will create and maintain records each day as required in subsection (c)(2) below for coating lines subject to Section 219.204(a)(3).

- vi) An example format in which the records required in subsection (c)(2) below for coating lines subject to Section 219.204(a)(3).

- 2) On and after a date consistent with Section 219.106, or on and after the initial start-up date, the owner or operator of a coating line subject to the limitations of Section 219.204 and complying by means of Section 219.204 shall collect and record all of the following information each day for each coating line and maintain the information at the facility for a period of three years:

- A) The name and identification number of each coating as applied on each coating line.

- B) The weight of VOM per volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line.

- C) For coating lines subject to Section 219.204(a)(3), the owner or operator shall maintain all records necessary to calculate the daily-weighted average VOM content from the coating line in accordance with the proposal submitted, and approved by the USEPA, pursuant to Section 219.204(a)(3).

- 3) On and after a date consistent with Section 219.106, the owner or operator of a subject coating line shall notify the Agency in the following instances:



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- A) Any record showing violation of Section 219.204 shall be reported by sending a copy of such record to the Agency within 30 days following the occurrence of the violation, except that any record showing a violation of Section 219.204(a)(3) shall be reported by sending a copy of such record to the Agency within 15 days from the end of the month in which the violation occurred.
- B) At least 30 calendar days before changing the method of compliance with Section 219.204 from Section 219.204 to Section 219.205 or Section 219.207, the owner or operator shall comply with all requirements of subsection (d)(1) or (e)(1) below, respectively. Upon changing the method of compliance with Section 219.204 from Section 219.204 to Section 219.205 or Section 219.207, the owner or operator shall comply with all requirements of subsection (d) or (e), respectively.
- C) For coating lines subject to Section 219.204(a)(3), the owner or operator shall notify the Agency of any change to the topcoating operation at least 30 days before the change is effected. The Agency shall determine whether or not recertification testing is required. If the Agency determines that recertification testing is required, then the owner or operator shall submit a proposal to the Agency to test within 30 days and retest within 30 days of the Agency's approval of the proposal.
- d) Any owner or operator of a coating line subject to the limitations of Section 219.204 and complying by means of Section 219.205 shall comply with the following:
- 1) By a date consistent with Section 219.106, or upon initial start-up of a new coating line, or upon changing the method of compliance for an existing subject coating line from Section 219.204 or Section 219.207 to Section 219.205; the owner or operator of the subject coating line shall certify to the Agency that the coating line will be in compliance with Section 219.205 on and after a date consistent with Section 219.106, or on and after the initial start-up date. Such certification shall include:
    - A) The name and identification number of each coating line which will comply by means of Section 219.205.
    - B) The name and identification number of each coating as applied on each coating line.

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- C) The weight of VOM per volume and the volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line.
  - D) The instrument or method by which the owner or operator will accurately measure or calculate the volume of each coating as applied each day on each coating line.
  - E) The method by which the owner or operator will create and maintain records each day as required in subsection (d)(2).
  - F) An example of the format in which the records required in subsection (d)(2) will be kept.
- 2) On and after a date consistent with Section 219.106, or on and after the initial start-up date, the owner or operator of a coating line subject to the limitations of Section 219.204 and complying by means of Section 219.205, shall collect and record all of the following information each day for each coating line and maintain the information at the facility for a period of three years:
- A) The name and identification number of each coating as applied on each coating line.
  - B) The weight of VOM per volume and the volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line.
  - C) The daily-weighted average VOM content of all coatings as applied on each coating line as defined in Section 219.104.
- 3) On and after a date consistent with Section 219.106, the owner or operator of a subject coating line shall notify the Agency in the following instances:
- A) Any record showing violation of Section 219.205 shall be reported by sending a copy of such record to the Agency within 30 days following the occurrence of the violation.
  - B) At least 30 calendar days before changing the method of compliance with this subpart from Section 219.205 to Section 219.204 or Section 219.207, the owner or operator shall comply with all requirements of subsection (c)(1) or (e)(1), respectively. Upon changing the method of compliance with this subpart from Section 219.205 to



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Section 219.204 or Section 219.207, the owner or operator shall comply with all requirements of subsection (c) or (e), respectively.

- e) Any owner or operator of a coating line subject to the limitations of Section 219.207 and complying by means of Section 219.207(c), (d), (e), (f), (g) or (h) shall comply with the following:

1) By a date consistent with Section 219.106, or upon initial start-up of a new coating line, or upon changing the method of compliance for an existing coating line from Section 219.204 or Section 219.205 to Section 219.207, the owner or operator of the subject coating line shall perform all tests and submit to the Agency the results of all tests and calculations necessary to demonstrate that the subject coating line will be in compliance with Section 219.207 on and after a date consistent with Section 219.106, or on and after the initial start-up date.

2) On and after a date consistent with Section 219.106, or on and after the initial start-up date, the owner or operator of a coating line subject to the limitations of Section 219.207 and complying by means of Section 219.207(c), (d), (e), (f), (g), or (h) shall collect and record all of the following information each day for each coating line and maintain the information at the facility for a period of three years:

- A) The weight of VOM per volume of coating solids as applied each day on each coating line, if complying pursuant to Section 219.207(b)(2).
- B) Control device monitoring data.
- C) A log of operating time for the capture system, control device, monitoring equipment and the associated coating line.
- D) A maintenance log for the capture system, control device and monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages.

3) On and after a date consistent with Section 219.106, the owner or operator of a subject coating line shall notify the Agency in the following instances:

- A) Any record showing violation of Section 219.207 shall be reported by sending a copy of such record to the Agency within 30 days following the occurrence of the violation.

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- B) At least 30 calendar days before changing the method of compliance with this Subpart from Section 219.207 to Section 219.204 or Section 219.205, the owner or operator shall comply with all requirements of subsection (c)(1) or (d)(1) of this Section, respectively. Upon changing the method of compliance with this subpart from Section 219.207 to Section 219.204 or Section 219.205, the owner or operator shall comply with all requirements of subsection (c) or (d) of this Section, respectively.

## SUBPART G: USE OF ORGANIC MATERIAL

## Section 219.301 Use of Organic Material

No person shall cause or allow the discharge of more than 3.6 kg/hr (8 lbs/hr) of organic material into the atmosphere from any emission source, except as provided in Sections 219.302, 219.303, 219.304 and the following exception: If no odor nuisance exists the limitation of this Subpart shall apply only to photochemically reactive material.

## Section 219.302 Alternative Standard

Emissions of organic material in excess of those permitted by Section 219.301 are allowable if such emissions are controlled by one of the following methods:

- a) Flame, thermal or catalytic incineration so as either to reduce such emissions to 10 ppm equivalent methane (molecular weight 16) or less, or to convert 85 percent of the hydrocarbons to carbon dioxide and water; or,
- b) A vapor recovery system which adsorbs and/or condenses at least 85 percent of the total uncontrolled organic material that would otherwise be emitted to the atmosphere; or,
- c) Any other air pollution control equipment approved by the Agency and approved by the USEPA as a SIP revision capable of reducing by 85 percent or more the uncontrolled organic material that would be otherwise emitted to the atmosphere.

## Section 219.303 Fuel Combustion Emission Sources

The provisions of Sections 219.301 and 219.302 shall not apply to fuel combustion emission sources.

## Section 219.304 Operations with Compliance Program

The provisions of Sections 219.301 and 219.302 shall not apply to any owner, operator, user or manufacturer of paint, varnish, lacquer, coatings or



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printing ink whose compliance program and project completion schedule, as required by 35 Ill. Adm. Code 201, provided for the reduction of organic material used in such process to 20 percent or less of total volume by May 30, 1977.

SUBPART H: PRINTING AND PUBLISHING

Section 219.401 Flexographic and Rotogravure Printing

a) No owner or operator of a subject flexographic, packaging rotogravure or publication rotogravure printing line shall apply at any time any coating or ink unless the VOM content does not exceed the limitation specified in either subsection (a)(1) or (a)(2) below. Compliance with this Section must be demonstrated through the applicable coating or ink analysis test methods and procedures specified in Section 219.105(a) and the recordkeeping and reporting requirements specified in Section 219.404(c). As an alternative to compliance with this subsection, a subject printing line may meet the requirements of subsection (b) or (c) below.

- 1) Forty percent VOM by volume of the coating and ink (minus water and any compounds which are specifically exempted from the definition of VOM), or
- 2) Twenty-five percent VOM by volume of the volatile content in the coating and ink.

b) No owner or operator of a subject flexographic, packaging rotogravure or publication rotogravure printing line shall apply coatings or inks on the subject printing line unless the weighted average, by volume, VOM content of all coatings and inks as applied each day on the subject printing line does not exceed the limitation specified in either subsection (a)(1) (as determined by subsection (b)(1) or subsection (a)(1)) (as determined by subsection (b)(2)). Compliance with this subsection must be demonstrated through the applicable coating or ink analysis test methods and procedures specified in Section 219.105(a) and the recordkeeping and reporting requirements specified in Section 219.404(d).

- 1) The following equation shall be used to determine if the weighted average VOM content of all coatings and inks as applied each day on the subject printing line exceeds the limitation specified in subsection (a)(1).

$$VOM_{(1)(A)} = \frac{\sum_{i=1}^n C_i L_i (V_{s_i} + V_{VOM_i})}{\sum_{i=1}^n L_i (V_{s_i} + V_{VOM_i})}$$

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Where:

$VOM_{(1)(A)} =$

The weighted average VOM content in units of percent VOM by volume of all coatings and inks (minus water and any compounds which are specifically exempted from the definition of VOM) used each day,

$i =$

Subscript denoting a specific coating or ink as applied,

$n =$

The number of different coatings and/or inks as applied each day on a printing line,

$C_i =$

The VOM content in units of percent VOM by volume of each coating or ink as applied (minus water and any compounds which are specifically exempted from the definition of VOM),

$L_i =$

The liquid volume of each coating or ink as applied in units of 1 (gal),

$V_{s_i} =$

The volume fraction of solids in each coating or ink as applied, and

$V_{VOM_i} =$

The volume fraction of VOM in each coating or ink as applied.

- 2) The following equation shall be used to determine if the weighted average VOM content of all coatings and inks as applied each day on the subject printing line exceeds the limitation specified in subsection (a)(2).

$$VOM_{(1)(B)} = \frac{\sum_{i=1}^n C_i L_i V_{VOM_i}}{\sum_{i=1}^n L_i V_{VOM_i}}$$

where:

$VOM_{(1)(B)} =$

The weighted average VOM content in units of percent VOM by volume of the volatile content of all coatings and inks used each day,

$i =$

Subscript denoting a specific coating or ink as applied,



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- $n$  = The number of different coatings and/or inks as applied each day on each printing line.
- $C_i$  = The VOM content in units of percent VOM by volume of the volatile matter in each coating or ink as applied.
- $L_i$  = The liquid volume of each coating or ink as applied in units of 1 (gal), and
- $V_{vol}$  = The volume fraction of volatile matter in each coating or ink as applied.

c) No owner or operator of a subject flexographic, packaging rotogravure or publication rotogravure printing line equipped with a capture system and control device shall operate the subject printing line unless the owner or operator meets the requirements in subsection (c)(1), (c)(2), or (c)(3) and subsections (c)(4), (c)(5) and (c)(6) below.

- 1) A carbon adsorption system is used which reduces the captured VOM emissions by at least 90 percent by weight, or
- 2) An incineration system is used which reduces the captured VOM emissions by at least 90 percent by weight, or
- 3) An alternative VOM emission reduction system is used which is demonstrated to have at least a 90 percent control device efficiency, approved by the Agency and approved by USEPA as a SIP revision, and
- 4) The printing line is equipped with a capture system and control device that provides an overall reduction in VOM emissions of at least:

- A) 75 percent where a publication rotogravure printing line is employed, or
- B) 65 percent where a packaging rotogravure printing line is employed, or
- C) 60 percent where a flexographic printing line is employed, and

4) The control device is equipped with the applicable monitoring equipment specified in Section 219.105(d)(2) and the monitoring equipment is installed, calibrated, operated and maintained according to vendor specifications at all times the control device is in use, and

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- 5) The capture system and control device are operated at all times when the subject printing line is in operation. The owner or operator shall demonstrate compliance with this subsection by using the applicable capture system and control device test methods and procedures specified in Section 219.105(c) through Section 219.105(f) and by complying with the recordkeeping and reporting requirements specified in Section 219.404(e).

## Section 219.402 Applicability

- a) The limitations of Section 219.401 apply to all flexographic and rotogravure printing lines at a subject facility. All facilities with flexographic and/or rotogravure printing lines are subject facilities unless:
  - 1) Total maximum theoretical emissions of VOM from all flexographic and rotogravure printing line(s) at the facility never exceed 90.7 Mg (100 tons) per calendar year before the application of capture systems and control devices, or
  - 2) A federally enforceable construction permit or SIP revision for all flexographic and rotogravure printing line(s) at a facility requires the owner or operator to limit production or capacity of these printing line(s) to reduce total VOM emissions from all flexographic and rotogravure printing line(s) to 90.7 Mg (100 tons) or less per calendar year before the application of capture systems and control devices.
- b) Upon achieving compliance with this Subpart, the emission source is not required to meet Subpart G (Sections 219.301 or 219.302). Emission sources exempt from this Subpart are subject to Subpart G (Sections 219.301 or 215.802). Rotogravure or flexographic equipment used for both roll printing and paper coating is subject to this Subpart.
- c) Once subject to the limitations of Section 219.401, a flexographic or rotogravure printing line is always subject to the limitations of Section 219.401.
- d) Any owner or operator of any flexographic or rotogravure printing line that is exempt from the limitations of Section 219.401 because of the criteria in this Section is subject to the recordkeeping and reporting requirements specified in Section 219.404(b).

## Section 219.403 Compliance Schedule

Every owner or operator of a flexographic and/or rotogravure printing line shall comply with the applicable requirements of Section 219.401 and Section



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219.404 in accordance with the applicable compliance schedule specified in subsection (a), (b), (c) or (d) below:

- a) No owner or operator of a flexographic or rotogravure printing line which is exempt from the limitations of Section 219.401 because of the criteria in Section 219.402 shall operate said printing line on or after a date consistent with Section 219.106, unless the owner or operator has complied with, and continues to comply with, Section 219.404(b).
- b) No owner or operator of a flexographic or rotogravure printing line complying by means of Section 219.401(a) shall operate said printing line on or after a date consistent with Section 219.106, unless the owner or operator has complied with, and continues to comply with, Section 219.401(a) and Section 219.404(c).
- c) No owner or operator of a flexographic or rotogravure printing line complying by means of Section 219.401(b) shall operate said printing line on or after a date consistent with Section 219.106, unless the owner or operator has complied with, and continues to comply with, Section 219.401(b) and Section 219.404(d).
- d) No owner or operator of a flexographic or rotogravure printing line complying by means of Section 219.401(c) shall operate said printing line on or after a date consistent with Section 219.106, unless the owner or operator has complied with, and continues to comply with, Section 219.401(c) and Section 219.404(e).

## Section 219.404 Recordkeeping and Reporting

- a) The VOM content of each coating and ink and the efficiency of each capture system and control device shall be determined by the applicable test methods and procedures specified in Section 219.105 to establish the records required under this Section.
- b) Any owner or operator of a printing line which is exempted from the limitations of Section 219.401 because of the criteria in Section 219.402 shall comply with the following:
  - 1) By a date consistent with Section 219.106, the owner or operator of a facility to which this subsection is applicable shall certify to the Agency that the facility is exempt under the provisions of Section 219.402. Such certification shall include:
    - A) A declaration that the facility is exempt from the limitations of the criteria in Section 219.401 because of Section 219.402, and

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- B) Calculations which demonstrate that total maximum theoretical emissions of VOM from all flexographic and rotogravure printing lines at the facility never exceed 90.7 Mg (100 tons) per calendar year before the application of capture systems and control devices. Total maximum theoretical emissions of VOM for a flexographic or rotogravure printing facility is the sum of maximum theoretical emissions of VOM from each flexographic and rotogravure printing line at the facility. The following equation shall be used to calculate total maximum theoretical emissions of VOM per calendar year before the application of capture systems and control devices for each flexographic and rotogravure printing line at the facility:

$$E_p = A \times B$$

where:

$E_p$  = Total maximum theoretical emissions of VOM from one flexographic or rotogravure printing line in units of kg/year (lbs/year),

$A$  = Weight of VOM per volume of solids of the coating or ink with the highest VOM content as applied each year on the printing line in units of kg VOM/l (lbs VOM/gal) of coating or ink solids, and

$B$  = Total volume of solids for all coatings and inks that can potentially be applied each year on the printing line in units of l/year (gal/year). The instrument and/or method by which the owner or operator accurately measured or calculated the volume of each coating and ink as applied and the amount that can potentially be applied each year on the printing line shall be described in the certification to the Agency.

- 2) On and after a date consistent with Section 219.106, the owner or operator of a facility referenced in this subsection shall collect and record all of the following information each year for each printing line and maintain the information at the facility for a period of three years:
  - A) The name and identification number of each coating and ink as applied on each printing line.
  - B) The VOM content and the volume of each coating and ink as applied each year on each printing line.



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- 3) On and after a date consistent with Section 219.106, the owner or operator of a facility exempted from the limitations of Section 219.401 because of the criteria in Section 219.402 shall notify the Agency of any record showing that total maximum theoretical emissions of VOM from all printing lines exceed 90.7 Mg (100 tons) in any calendar year before the application of capture systems and control devices by sending a copy of such record to the Agency within 30 days after the exceedance occurs.

- c) Any owner or operator of a printing line subject to the limitations of Section 219.401 and complying by means of Section 219.401(a) shall comply with the following:
  - 1) By a date consistent with Section 219.106, or upon initial start-up of a new printing line, or upon changing the method of compliance from an existing subject printing line from Section 219.401(b) or Section 219.401(c) to Section 219.401(a), the owner or operator of a subject printing line shall certify to the Agency that the printing line will be in compliance with Section 219.401(a) on and after a date consistent with Section 219.106, or on and after the initial start-up date. Such certification shall include:
    - A) The name and identification number of each coating and ink as applied on each printing line.
    - B) The VOM content of each coating and ink as applied each day on each printing line.
  - 2) On and after a date consistent with Section 219.106, or on and after the initial start-up date, the owner or operator of a printing line subject to the limitations of Section 219.401 and complying by means of Section 219.401(a) shall comply with the following:
    - A) The name and identification number of each coating and ink which will comply by means of Section 219.401(b).
    - B) The name and identification number of each coating and ink available for use on each printing line.
    - C) The VOM content of each coating and ink as applied each day on each printing line.
    - D) The instrument or method by which the owner or operator will accurately measure or calculate the volume of each coating and ink as applied each day on each printing line.
    - E) The method by which the owner or operator will create and maintain records each day as required in subsection (b)(2).
    - F) An example of the format in which the records required in subsection (b)(2) will be kept.
  - 3) On and after a date consistent with Section 219.106, or on and after the initial start-up date, the owner or operator of a

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reported by sending a copy of such record to the Agency within 30 days following the occurrence of the violation.

- B) At least 30 calendar days before changing the method of compliance with Section 219.401 from Section 219.401(a) to Section 219.401(b) or (c), the owner or operator shall comply with all requirements of subsection (b)(1) or (c)(1), respectively. Upon changing the method of compliance with Section 219.401 from Section 219.401(a) to Section 219.401(b) or (c), the owner or operator shall comply with all requirements of subsection (b) or (c), respectively.

- d) Any owner or operator of a printing line subject to the limitations of Section 219.401 and complying by means of Section 219.401(b) shall comply with the following:
  - 1) By a date consistent with Section 219.106, or upon initial start-up of a new printing line, or upon changing the method of compliance for an existing subject printing line from Section 219.401(a) or (c) to Section 219.401(b), the owner or operator of the subject printing line shall certify to the Agency that the printing line will be in compliance with Section 219.401(b) on and after a date consistent with Section 219.106, or on and after the initial start-up date. Such certification shall include:
    - A) The name and identification number of each printing line which will comply by means of Section 219.401(b).
    - B) The name and identification number of each coating and ink available for use on each printing line.
    - C) The VOM content of each coating and ink as applied each day on each printing line.
    - D) The instrument or method by which the owner or operator will accurately measure or calculate the volume of each coating and ink as applied each day on each printing line.
    - E) The method by which the owner or operator will create and maintain records each day as required in subsection (b)(2).
    - F) An example of the format in which the records required in subsection (b)(2) will be kept.
  - 2) On and after a date consistent with Section 219.106, or on and after the initial start-up date, the owner or operator of a



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printing line subject to the limitations of Section 219.401 and complying by means of Section 219.401(b) shall collect and record all of the following information each day for each printing line and maintain the information at the facility for a period of three years:

- A) The name and identification number of each coating and ink as applied on each printing line.
- B) The VOM content and the volume of each coating and ink as applied each day on each printing line.
- C) The daily-weighted average VOM content of all coatings and inks as applied on each printing line.

3) On and after a date consistent with Section 219.106, the owner or operator of a subject printing line shall notify the Agency in the following instances:

- A) Any record showing violation of Section 219.401(b) shall be reported by sending a copy of such record to the Agency within 30 days following the occurrence of the violation.
- B) At least 30 calendar days before changing the method of compliance with Section 219.401 from Section 219.401(b) to Section 219.401(a) or 219.401(c), the owner or operator shall comply with all requirements of subsection (c)(1) or (e)(1), respectively. Upon changing the method of compliance with Section 219.401 from Section 219.401(b) to Section 219.401(a) or (c), the owner or operator shall comply with all requirements of subsection (c) or (e), respectively.

e) Any owner or operator of a printing line subject to the limitations of Section 219.401 and complying by means of Section 219.401(c) shall comply with the following:

- 1) By a date consistent with Section 219.106, or upon initial start-up of a new printing line, or upon changing the method of compliance for an existing printing line from Section 219.401(a) or (b) to Section 219.401(c), the owner or operator of the subject printing line shall perform all tests and submit to the Agency the results of all tests and calculations necessary to demonstrate that the subject printing line will be in compliance with Section 219.401(c) on and after a date consistent with Section 219.106, or on and after the initial start-up date.
- 2) On and after a date consistent with Section 219.106, or on and after the initial start-up date, the owner or operator of a

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printing line subject to the limitations of Section 219.401 and complying by means of Section 219.401(c) shall collect and record all of the following information each day for each printing line and maintain the information at the facility for a period of three years:

- A) Control device monitoring data.
- B) A log of operating time for the capture system, control device, monitoring equipment and the associated printing line.
- C) A maintenance log for the capture system, control device and monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages.

3) On and after a date consistent with Section 219.106, the owner or operator of a subject printing line shall notify the Agency in the following instances:

- A) Any record showing violation of Section 219.401(c), shall be reported by sending a copy of such record to the Agency within 30 days following the occurrence of the violation.
- B) At least 30 calendar days before changing the method of compliance with Section 219.401 from Section 219.401(c) to Section 219.401(a) or (b), the owner or operator shall comply with all requirements of subsection (c)(1) or (d)(1), respectively. Upon changing the method of compliance with Section 219.401 from Section 219.401(c) to Section 219.401(a) or (b), the owner or operator shall comply with all requirements of subsection (c) or (d), respectively.

## Section 219.405 Heatset-Web-Offset Lithographic Printing

## a) Applicability

1) The limitations of subsection (b) below apply to all heatset-web-offset lithographic printing lines at a subject facility. All facilities with heatset-web-offset lithographic printing lines are subject facilities unless:

- A) Total maximum theoretical emissions of VOM from all heatset-web-offset lithographic printing lines at the facility never exceed 90.7 Mg (100 tons) per calendar year in the absence of air pollution control equipment, or



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B) A federally enforceable construction permit or SIP revision for all heat-set-web-offset lithographic printing lines(s) at a facility requires the owner or operator to limit production or capacity of these printing line(s) to reduce total VOM emissions from all heat-set-web-offset lithographic printing line(s) to 90.7 Mg (100 tons) per calendar year or less in the absence of air pollution control equipment, and

2) Any owner or operator of any heat-set-web-offset lithographic printing line that is exempt from the limitations in subsection (b) because of the criteria in subsection (a)(1) shall be subject to the recordkeeping and reporting requirements in subsection (c)(1).

b) Specific Provisions. No owner or operator of a subject heat-set-web-offset printing line may cause or allow the operation of the subject heat-set-web-offset printing line unless the owner or operator meets the requirements in subsection (b)(1) or (b)(2) and the requirements in subsections (b)(3) and (b)(4) below.

1) An afterburner system is installed and operated that reduces 90 percent of the VOM emissions from the dryer exhaust, or

2) The fountain solution contains no more than 8 percent, by weight, of VOM and a condensation recovery system is installed and operated that removes at least 75 percent of the non-isopropyl alcohol organic materials from the dryer exhaust, and

3) The control device is equipped with the applicable monitoring equipment specified in Section 219.105(d)(2) and the monitoring equipment is installed, calibrated, operated and maintained according to vendor specifications at all times the control device is in use, and

4) The control device is operated at all times when the subject printing line is in operation. The owner or operator shall demonstrate compliance with this Section by using the applicable test methods and procedures specified in Section 219.105(a), (d), and (f) and by complying with the recordkeeping and reporting requirements specified in subsection (c) below.

c) Recordkeeping and Reporting. The VOM content of each fountain solution and ink and the efficiency of each control device shall be determined by the applicable test methods and procedures specified in Section 219.105 to establish the records required under this subsection.

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1) Any owner or operator of a printing line which is exempted from the limitations of subsection (b) because of the criteria in subsection (a) shall comply with the following:

A) By a date consistent with Section 219.106, the owner or operator of a facility to which subsection (c)(1) is applicable shall certify to the Agency that the facility is exempt under the provisions of subsection (a). Such certification shall include:

i) A declaration that the facility is exempt from the limitations of subsection (b) because of the criteria in subsection (a), and

ii) Calculations which demonstrate that total maximum theoretical emissions of VOM from all heat-set-web-offset lithographic printing lines at the facility never exceed 90.7 Mg (100 tons) per calendar year before the application of air pollution control equipment. Total maximum theoretical emissions of VOM for a heat-set-web-offset lithographic printing facility is the sum of maximum theoretical emissions of VOM from each heat-set-web-offset lithographic printing line at the facility. The following equation shall be used to calculate total maximum theoretical emissions of VOM per calendar year in the absence of air pollution control equipment for each heat-set-web-offset lithographic printing line at the facility.

$$E_p = (A \times B) + \frac{(C \times D)}{100}$$

where:

$E_p$  = Total maximum theoretical emissions of VOM from one heat-set-web-offset printing line in units of kg/year (lbs/year).

A = Weight of VOM per volume of solids of ink with the highest VOM content as applied each year on the printing line in units of kg VOM/l (lbs VOM/gal) of solids, and

B = Total volume of solids for all inks that can potentially be applied each year on the printing line in units of l/year (gal/year). The instrument or method by which the owner or operator accurately measured or calculated the



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volume of each ink as applied and the amount that can potentially be applied each year on the printing line shall be described in the certification to the Agency.

C = The weight percent VOM of the fountain solution with the highest VOM content.

D = The total volume of fountain solution that can potentially be used each year on the printing line in units of 1/year (gal/year). The instrument and/or method by which the owner or operator accurately measured or calculated the volume of each fountain solution used and the amount that can potentially be used each year on the printing line shall be described in the certification to the Agency.

B) On and after a date consistent with Section 219.106, the owner or operator of a facility to which subsection (c)(1) is applicable shall collect and record all of the following information each year for each printing line and maintain the information at the facility for a period of three years:

- i) The name and identification of each fountain solution and ink as applied on each printing line.
- ii) The VOM content and the volume of each fountain solution and ink as applied each year on each printing line.

C) On and after a date consistent with Section 219.106, the owner or operator of a facility exempted from the limitations of subsection (b) because of the criteria in subsection (a) shall notify the Agency of any record showing that total maximum theoretical emissions of VOM from all printing lines exceed 90.7 Mg (100 tons) in any calendar year in the absence of air pollution control equipment by sending a copy of such record to the Agency within 30 days after the exceedance occurs.

2) Any owner or operator of a printing line subject to the limitations of subsection (b) and complying by means of subsection (b)(1) shall comply with the following:

- A) By a date consistent with Section 219.106, or upon initial start-up of a new printing line, or upon changing the method of compliance for an existing printing line from

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subsection (b)(2) to subsection (b)(1); the owner or operator of the subject printing line shall perform all tests and submit to the Agency the results of all tests and calculations necessary to demonstrate that the subject printing line will be in compliance with subsection (b)(1) on and after a date consistent with Section 219.106, or on and after the initial start-up date.

B) On and after a date consistent with Section 219.106, or on and after the initial start-up date, the owner or operator of a printing line subject to the limitations of subsection (b) and complying by means of subsection (b)(1) shall collect and record the following information each day for each printing line and maintain the information at the facility for a period of three years:

- i) Control device monitoring data.
- ii) A log of operating time for the control device, monitoring equipment and the associated printing line.
- iii) A maintenance log for the control device and monitoring equipment detailing all routine and nonroutine maintenance performed including dates and duration of any outages.

C) On and after a date consistent with Section 219.106, the owner or operator of a subject printing line shall notify the Agency in the following instances:

- i) Any record showing violation of subsection (b)(1) shall be reported by sending a copy of such record to the Agency within 30 days following the occurrence of the violation.
- ii) At least 30 calendar days before changing the method of compliance with subsection (b) from subsection (b)(1) to (b)(2), the owner or operator shall comply with all requirements of subsection (c)(3)(A). Upon changing the method of compliance with subsection (b) from subsection (b)(1) to (b)(2), the owner or operator shall comply with all requirements of subsection (c)(3).

3) Any owner or operator of a printing line subject to the limitations of subsection (b) and complying by means of subsection (b)(2) shall comply with the following:



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- A) By a date consistent with Section 219.106, or upon initial start-up of a new printing line, or upon changing the method of compliance for an existing printing line from subsection (b)(1) to (b)(2); the owner or operator of the subject printing line shall perform all tests and submit to the Agency and the USEPA the results of all tests and calculations necessary to demonstrate that the subject printing line will be in compliance with subsection (b)(2) on and after a date consistent with Section 219.106, or on and after the initial start-up date.
- B) On and after a date consistent with Section 219.106, or on and after the initial start-up date, the owner or operator of a printing line subject to the limitations of subsection (b) and complying by means of subsection (b)(2) shall collect and record the following information each day for each printing line and maintain the information at the facility for a period of three years:
- i) The VOM content of the fountain solution used each day on each printing line.
  - ii) A log of operating time for the control device and the associated printing line.
  - iii) A maintenance log for the control device detailing all routine and non-routine maintenance performed including dates and duration of any outages.
- C) On and after a date consistent with Section 219.106, the owner or operator of a subject printing line shall notify the Agency in the following instances:
- i) Any record showing violation of subsection (b)(2) shall be reported by sending a copy of such record to the Agency within 30 days following the occurrence of the violation.
  - ii) At least 30 calendar days before changing the method of compliance with subsection (b) from subsection (b)(2) to (b)(1), the owner or operator shall comply with all requirements of subsection (c)(2)(A). Upon changing the method of compliance with subsection (b) from subsection (b)(2) to (b)(1), the owner or operator shall comply with all requirements of subsection (c)(2).
- d) Compliance Schedule. Every owner or operator of a heatset-web-offset lithographic printing line shall comply with the applicable

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- requirements of subsections (b) and (c) in accordance with the applicable compliance schedule specified in subsection (d)(1), (d)(2), or (d)(3) below:
- 1) No owner or operator of a heatset-web-offset lithographic printing line which is exempt from the limitations of subsection (b) because of the criteria in subsection (a) shall operate said printing line on or after a date consistent with Section 219.106, unless the owner or operator has complied with, and continues to comply with, subsection (b)(1) and (c)(1).
  - 2) No owner or operator of a heatset-web-offset lithographic printing line complying by means of subsection (b)(1) shall operate said printing line on or after a date consistent with Section 219.106, unless the owner or operator has complied with, and continues to comply with, subsection (b)(2) and (c)(2).
  - 3) No owner or operator of a heatset-web-offset lithographic printing line complying by means of subsection (b)(2) shall operate said printing line on or after a date consistent with Section 219.106, unless the owner or operator has complied with, and continues to comply with, subsection (c)(3).

SUBPART Q: LEAKS FROM SYNTHETIC ORGANIC CHEMICAL  
AND POLYMER MANUFACTURING EQUIPMENT

## Section 219.421 General Requirements

The owner or operator of a plant which processes more than 3660 mg/yr (4033 tons/year) gaseous and light liquid VOM, and whose components are used to manufacture the synthetic organic chemicals or polymers listed in Appendix A, shall comply with this Subpart. The provisions of this Subpart are applicable to components containing 10 percent or more by weight VOM as determined by ASTM method E-168, E-169 and E-260, incorporated by reference in Section 219.112. Those components that are not process unit components are exempt from this Subpart. A component shall be considered to be leaking if the VOM is equal to, or is greater than 10,000 ppmv as methane or hexane as determined by USEPA Reference Method 21, as specified at 40 CFR 60, Appendix A, incorporated by reference in Section 219.112, indication of liquids dripping, or indication by a sensor that a seal or barrier fluid system has failed. The provisions of this Subpart are not applicable if the equipment components are used to produce heavy liquid chemicals only from heavy liquid feed or raw materials.

## Section 219.422 Inspection Program Plan for Leaks

The owner or operator of a synthetic organic chemical or polymer manufacturing plant subject to Section 219.421 shall prepare an inspection program plan which contains, at a minimum:



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- a) An identification of all components and the period in which each will be monitored pursuant to Section 219.423.
- b) The format for the monitoring log required by Section 219.425.
- c) A description of the monitoring equipment to be used when complying with Section 219.423, and
- d) A description of the methods to be used to identify all pipeline valves, pressure relief valves in gaseous service, all leaking components, and components exempted under Section 219.423(i) such that they are obvious and can be located by both plant personnel performing monitoring and Agency personnel performing inspections.

## Section 219.423 Inspection Program for Leaks

The owner or operator of a synthetic organic chemical or polymer manufacturing plant subject to this subpart shall, for the purposes of detecting leaks, conduct a component inspection program using the test methods specified in Method 21, 40 CFR 60, Appendix A (1986), incorporated by reference in Section 219.112, consistent with the following provisions:

- a) Test annually those components operated near extreme temperature or pressure such that they would be unsafe to routinely monitor and those components which would require the elevation of monitoring personnel higher than two meters above permanent worker access structures or surfaces.
- b) Test quarterly all other pressure relief valves in gas service, pumps in light liquid service, valves in light liquid service and in gas service, and compressors.
- c) If less than or equal to 2 percent of the valves in light liquid service and in gas service tested pursuant to subsection (b) are found not to leak for five consecutive quarters, no leak tests shall be required for three consecutive quarters. Thereafter, leak tests shall resume for the next quarter. If that test shows less than or equal to 2 percent of the valves in light liquid service and in gas service are leaking, then no tests are required for the next three quarters. If more than 2 percent are leaking, then tests are required for the next five quarters.
- d) Observe visually all pump seals weekly.
- e) Test immediately any pump seal from which liquids are observed dripping.
- f) Test any relief valve within 24 hours after it has vented to the atmosphere.

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- g) Routine instrument monitoring of valves which are not externally regulated, flanges, and equipment in heavy liquid service, is not required. However, any valve which is not externally regulated, flange or piece of equipment in heavy liquid service that is found to be leaking on the basis of sight, smell or sound shall be repaired as soon as practicable but no later than 30 days after the leak is found.
- h) Test immediately after repair any component that was found leaking.
  - 1) Within one hour of its detection, a weatherproof, readily visible tag, in bright colors such as red or yellow, bearing an identification number and the date on which the leak was detected must be affixed on the leaking component and remain in place until the leaking component is repaired.
- j) The following components are exempt from the monitoring requirements in this Section:
  - 1) Any component that is in vacuum service, and
  - 2) Any pressure relief valve that is connected to an operating flare header or vapor recovery device.

## Section 219.424 Repairing Leaks

All leaking components must be repaired and retested as soon as practicable but no later than 15 days after the leak is found unless the leaking component cannot be repaired until the process unit is shut down. Records of repairing and retesting must be maintained in accordance with Section 219.425 and 219.426.

## Section 219.425 Recordkeeping for Leaks

- a) The owner or operator of a synthetic organic chemical or polymer manufacturing plant shall maintain a leaking components monitoring log which shall contain, at a minimum, the following information:
  - 1) The name of the process unit where the component is located;
  - 2) The type of component (e.g., valve, seal);
  - 3) The identification number of the component;
  - 4) The date on which a leaking component is discovered;
  - 5) The date on which a leaking component is repaired;
  - 6) The date and instrument reading of the recheck procedure after a leaking component is repaired;



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- 7) A record of the calibration of the monitoring instrument;
  - 8) The identification number of leaking components which cannot be repaired until process unit shutdown; and
  - 9) The total number of valves in light liquid service and in gas service inspected; the total number and the percentage of these valves found leaking during the monitoring period.
- b) Copies of the monitoring log shall be retained by the owner or operator for a minimum of two years after the date on which the record was made or the report was prepared.
  - c) Copies of the monitoring log shall be made available to the Agency upon verbal or written request prior to or at the time of inspection pursuant to Section 4(d) of the Environmental Protection Act (Act) (11. Rev. Stat. 1989, ch. 111 1/2, pars. 1001 et seq.) at any reasonable time.

## Section 219.426 Report for Leaks

The owner or operator of a synthetic organic chemical or polymer manufacturing plant subject to Section 219.421 through 219.430 shall:

- a) Submit quarterly reports to the Agency on or before March 31, June 30, September 30, and December 31 of each year, listing all leaking components identified pursuant to Section 219.423 but not repaired within 15 days, all leaking components awaiting process unit shutdown, the total number of components inspected, the type of components inspected, and the total number of components found leaking, the total number of valves in light liquid service and in gas service inspected and the number and percentage of valves in light liquid service and in gas service found leaking.

- b) Submit a signed statement with the report attesting that all monitoring and repairs were performed as required under Section 219.421 through 219.427.

## Section 219.427 Alternative Program for Leaks

The Agency shall approve an alternative program of monitoring, recordkeeping, or reporting to that prescribed in this Subpart upon a demonstration by the owner or operator of such plant that the alternative program will provide plant personnel and Agency personnel with an equivalent ability to identify and repair leaking components. Any alternative program can be allowed when approved by the Agency and approved by the USEPA as a SIP revision.

## Section 219.428 Open-Ended Valves

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- a) Each open-ended valve shall be equipped with a cap, blind flange, plug, or a second valve, except during operations requiring fluid flow through the open-ended valve.
- b) Each open-ended valve equipped with a second valve shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed.
- c) Components which are open-ended valves and which serve as a sampling connection shall be controlled such that:
  - 1) A closed purge system or closed vent system shall return purged process fluid to the process line with no detectable volatile organic material emissions to the atmosphere, or
  - 2) A closed purge system or closed vent system shall collect and recycle purged process fluid to the process line with no detectable volatile organic material emissions to the atmosphere, or
  - 3) Purged process fluid shall be transported to a control device that complies with the requirements of Section 219.429.

- d) In-situ sampling systems are exempt from subsection (c).

## Section 219.429 Standards for Control Devices

Control devices used to comply with Section 219.428(c) shall comply with the following:

- a) If the control device is a vapor recovery system (for example, condensers and adsorbers), it shall be designed and operated to recover the volatile organic material emissions vented to it with an efficiency of 95 percent or greater.
- b) If the control device is an enclosed combustion device, it shall be designed and operated to reduce the volatile organic material emissions vented to it with an efficiency of 95 percent or greater, or to provide a minimum residence time of 0.75 seconds at a minimum temperature of 816°C.
- c) If the control device is a flare, it shall:
  - 1) Be designed for and operated with no visible emissions as determined by USEPA Reference Method 22, 40 CFR 60, Appendix A (1986), incorporated by reference in Section 219.112, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.



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2) Be operated with a pilot flame present at all times and shall be monitored with a thermocouple or any other equivalent device to detect the presence of the pilot flame.

3) Be steam-assisted, air-assisted, or nonassisted.

4) Be used only with the net heating value of the gas being combusted being 11.2 MJ/scm (300 Btu/scf) or greater if the flare is steam-assisted or air-assisted; or with the net heating value of the gas being combusted being 7.45 MJ/scm or greater if the flare is nonassisted. The net heating value of the gas being combusted shall be calculated using the following equation:

$$H_r = K \sum_{i=1}^n C_i H_i$$

Where:

$H_r$  = Net heating value of the sample in MJ/scm; where the net enthalpy per mole of offgas is based on combustion at 25°C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20°C.

$K$  = Constant.

$$1.740 \times 10^{-7} \text{ (1/ppm)(g-mole/scm)(MJ/Kcal)}$$

where

standard temperature for (g-mole/scm) is 20°C.

$C_i$  = Concentration of sample component  $i$ , in ppm, as measured by USEPA Reference Method 18, 40 CFR 60, Appendix A (1986), and ASTM D 2504-83, both incorporated by reference in Section 219.112.

$H_i$  = Net heat of combustion of sample component  $i$ , kcal/g mole. The heats of combustion may be determined using ASTM D 2382-83, incorporated by reference in Section 219.112, if published values are not available or cannot be calculated.

5) Steam-assisted and nonassisted flares shall be designed and operated with an exit velocity, as determined by dividing the volumetric flowrate (in units of standard temperature and pressure), as determined by USEPA Reference Method 2 or 2A, 40 CFR 60, Appendix A (1986) incorporated by reference in Section

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219.112, as appropriate; by the unobstructed (free) cross sectional area of the flare tip, less than 18 m/sec (60 ft/sec).

6) Air-assisted flares shall be designed and operated with an exit velocity less than the maximum permitted velocity,  $V_{max}$ , as determined by the following equation:

$$V_{max} = 8.706 + 0.7084(H_r)$$

$V_{max}$  = Maximum permitted velocity, m/sec.

$$8.706 = \text{Constant.}$$

$$0.7084 = \text{Constant.}$$

$H_r$  = The net heating value as determined in subsection

(c)(4) of this section.

d) If the control device is a closed container, it shall be designed and operated to reduce the volatile organic material emissions, vented from purged process fluid after transfer, to no detectable volatile organic material emissions as determined by USEPA Reference Method 21 as specified at 40 CFR 60, Appendix A (1986), incorporated by reference in Section 219.112. For purposes of this Section, the phrase "after transfer" shall refer to the time at which the entire amount of purged process fluid resulting from a flushing or cleaning of the sample line enters the closed container or containers including the final container(s) prior to disposal.

e) The owner or operator of a control device shall monitor the control device to ensure that it is operated and maintained in conformance with the manufacturer's specifications, modified to the particular process design.

f) The control device shall be operated at all times when emissions may be vented to it.

## Section 219.430 Compliance Date

The owner or operator of a synthetic organic chemical or polymer manufacturing plant subject to 35 Ill. Adm. Code 215.430 through 215.438 as of December 31, 1987 shall have complied with the standards and limitations of those Sections no later than December 31, 1987.

## SUBPART R: PETROLEUM REFINING AND RELATED INDUSTRIES; ASPHALT MATERIALS

## Section 219.441 Petroleum Refinery Waste Gas Disposal

a) Except as provided in subsection (b) or (c), no person shall cause or allow the discharge of organic materials in excess of 100 ppm equivalent methane (molecular weight 16.0) into the atmosphere from:



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- 1) Any catalyst regenerator of a petroleum cracking system; or
- 2) Any petroleum fluid coker; or
- 3) Any other waste gas stream from any petroleum or petrochemical manufacturing process.
- b) Exception. Existing sources subject to subsection (a)(3) may, alternatively, at their election, comply with the organic material emission limitations imposed by 35 Ill. Adm. Code 215.301 or 215.302; provided, however, that there shall be no increase in emissions from such sources above the level of emissions in existence on May 3, 1979.
- c) New Sources. Sources subject to subsection (a)(3), construction of which commenced on or after January 1, 1977, may, at their election, comply with the following emission limitations:
  - 1) A maximum of eight pounds per hour of organic material; or
  - 2) Emission of organic material in excess of the limitation of subsection (c)(1) is allowable if such emissions are controlled by air pollution control methods or equipment approved by the Agency capable of reducing by 85 percent or more the uncontrolled organic material that would otherwise be emitted to the atmosphere. Such methods or equipment must be approved by the Agency and approved by the USEPA as a SIP revision.

## Section 219.442 Vacuum Producing Systems

No owner or operator of a petroleum refinery shall cause or allow the operation of any vacuum producing system unless the condensers, hot wells and accumulators of any such system are equipped with vapor loss control equipment including, but not limited to, piping, valves, flame arrestors and hot well covers, to vent any volatile organic material with a vapor pressure of 10.34 kPa (1.5 psia) or greater at 294.3°K (70°F) to a heater, fire box, flare, refinery fuel gas system, or other equipment or system of equal emission control as approved by the Agency and approved by the USEPA as a SIP revision. This Section shall not apply to vacuum producing systems on lube units.

## Section 219.443 Wastewater (Oil/Water) Separator

No owner or operator of a petroleum refinery shall operate any wastewater (oil/water) separator at a petroleum refinery unless the separator is equipped with air pollution control equipment capable of reducing by 85 percent or more the uncontrolled organic material emitted to the atmosphere. If no odor nuisance exists, the limitation of this Section shall not apply if the vapor pressure of the organic material is below 10.34 kPa (1.5 psia) at 204.3°K (70°F) at all times.

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## Section 219.444 Process Unit Turnarounds

- a) No owner or operator of a petroleum refinery shall cause or allow a refinery process unit turnaround except in compliance with an operating procedure as approved by the Agency.
- b) Unless a procedure was already on file with the Agency as part of an approved operating permit no later than November 1, 1979, the owner or operator of a petroleum refinery shall submit to the Agency for approval a detailed procedure for reducing emissions of volatile organic material during refinery process unit turnarounds from organic material with a vapor pressure of 10.34 kPa (1.5 psia) or greater at 294.3°K (70°F). The Agency shall not approve the procedure unless it provides for:
  - 1) Depressurization of the refinery process unit or vessel to a flare, refinery fuel gas system, or other equipment or system of equal emission control, as approved by the Agency and approved by the USEPA as a SIP revision, until the internal pressure from the vessel or unit is less than 5.0 psig before allowing the vessel to be vented to the atmosphere;
  - 2) Recordkeeping of the following items:
    - A) Each date that a refinery unit or vessel is shut down; and
    - B) The total estimated quantity of volatile organic material emitted to the atmosphere and the duration of the emission in hours.

## Section 219.445 Leaks: General Requirements

- a) The owner or operator of a petroleum refinery shall:
  - 1) Develop a monitoring program plan consistent with the provisions of Section 219.446;
  - 2) Conduct a monitoring program consistent with the provisions of Section 219.447;
  - 3) Record all leaking components which have a volatile organic material concentration exceeding 10,000 ppm consistent with the provisions of Section 219.448;
  - 4) Identify each component consistent with the monitoring program plan submitted pursuant to Section 219.446;
  - 5) Repair and retest the leaking components as soon as possible within 22 days after the leak is found, but no later than June 1



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for the purposes of Section 219.447(a)(1), unless the leaking components cannot be repaired until the unit is shut down for turnaround; and

- 6) Report to the Agency consistent with the provisions of Section 219.449.

## Section 219.446 Monitoring Program Plan for Leaks

The owner or operator of a petroleum refinery shall prepare a monitoring program plan which contains, at a minimum:

- a) An identification of all refinery components and the period in which each will be monitored pursuant to Section 219.447;
- b) The format for the monitoring log required by Section 219.448;
- c) A description of the monitoring equipment to be used pursuant to Section 219.447; and
- d) A description of the methods to be used to identify all pipeline valves, pressure relief valves in gaseous service and all leaking components such that they are obvious to both refinery personnel performing monitoring and Agency personnel performing inspections.

## Section 219.447 Monitoring Program for Leaks

- a) The owner or operator of a petroleum refinery subject to Section 219.445 shall, for the purpose of detecting leaks, conduct a component monitoring program consistent with the following provisions:

- 1) Test once between March 1 and June 1 of each year, by methods referenced in Section 219.105(g), all pump seals, pipeline valves in liquid service and process drains.
- 2) Test once each quarter of each calendar year, by methods referenced in Section 219.105(g), all pressure relief valves in gaseous service, pipeline valves in gaseous service and compressor seals.
- 3) Inaccessible valves may be tested once each calendar year instead of once each quarter of each calendar year.
- 4) Observe visually all pump seals weekly.
- 5) Test immediately any pump seal from which liquids are observed dripping.

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- 6) Test any relief valve within 24 hours after it has vented to the atmosphere, and
  - 7) Test immediately after repair any component that was found leaking.
- b) Storage tank valves and pressure relief devices connected to an operating flare header or vapor recovery device are exempt from the monitoring requirements in subsection (a).
  - c) The Agency may require more frequent monitoring than would otherwise be required by subsection (a) for components which are demonstrated to have a history of leaking.

## Section 219.448 Recordkeeping for Leaks

- a) The owner or operator of a petroleum refinery shall maintain a leaking components monitoring log which shall contain, at a minimum, the following information:

- 1) The name of the process unit where the component is located;
  - 2) The type of component (e.g., valve, seal);
  - 3) The identification number of the component;
  - 4) The date on which a leaking component is discovered;
  - 5) The date on which a leaking component is repaired;
  - 6) The date and instrument reading of the recheck procedure after a leaking component is repaired;
  - 7) A record of the calibration of the monitoring instrument;
  - 8) The identification number of leaking components which cannot be repaired until turnaround; and
  - 9) The total number of components inspected and the total number of components found leaking during that monitoring period.
- b) Copies of the monitoring log shall be retained by the owner or operator for a minimum of two years after the date on which the record was made or the report prepared.
  - c) Copies of the monitoring log shall be made available to the Agency, upon verbal or written request, at any reasonable time.



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## Section 219.449 Reporting for Leaks

The owner or operator of a petroleum refinery shall:

- a) Submit a report to the Agency prior to the 1st day of both July and September listing all leaking components identified pursuant to Section 219.447 but not repaired within 22 days, all leaking components awaiting unit turnaround, the total number of components inspected and the total number of components found leaking;
- b) Submit a signed statement with the report attesting that all monitoring and repairs were performed as required under Sections 219.445 through 219.448.

## Section 219.450 Alternative Program for Leaks.

The Agency may approve an alternative program of monitoring, recordkeeping or reporting to that prescribed in Sections 219.446 through 219.449 upon a demonstration by the owner or operator of a petroleum refinery that the alternative program will provide refinery, Agency and USEPA personnel with an equivalent ability to identify and repair leaking components. Any alternative program can be allowed only if approved by the USEPA as a SIP revision.

## Section 219.451 Sealing Device Requirements

Except for safety pressure relief valves, no owner or operator of a petroleum refinery shall install or operate a valve at the end of a pipe or line containing volatile organic materials unless the pipe or line is sealed with a second valve, blind flange, plug, cap or other sealing device. The sealing device may be removed only when a sample is being taken or during maintenance operations.

## Section 219.452 Compliance Schedule for Leaks

The owner or operator of a petroleum refinery shall adhere to the increments of progress contained in the following schedule:

- a) Submit to the Agency a monitoring program consistent with Section 219.446 prior to July 1, 1991 or a date consistent with Section 219.106.
- b) Submit to the Agency the first monitoring report pursuant to Section 219.449 prior to August 1, 1991 or a date consistent with Section 219.106.

## Section 218.453 Compliance Dates

Every owner or operator of a petroleum refinery subject to 35 Ill. Adm. Code

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215, Subpart R as of December 31, 1987 shall have complied with its standards and limitations by December 31, 1987.

## SUBPART S: RUBBER AND MISCELLANEOUS PLASTIC PRODUCTS

## Section 219.461 Manufacture of Pneumatic Rubber Tires

The owner or operator of an undertread cementing, treadend cementing or bead dipping operation at a pneumatic rubber tire manufacturing facility shall install and operate:

- a) A capture system, with minimum capture efficiency of 65 percent by weight of VOM for treadend cementing or bead dipping operations and a capture system with a minimum capture efficiency of 55.5 percent by weight of VOM for undertread cementing; and
- b) A control device that meets the requirements of one of the following:
  - 1) A carbon adsorption system designed and operated in a manner such that there is at least a 90 percent removal of VOM by weight from the gases ducted to the control device;
  - 2) An afterburning system that oxidizes at least 90 percent of the captured nonmethane VOM (VOM measured as total combustible carbon) to carbon dioxide and water; and
  - 3) An alternative VOM emission reduction system demonstrated to have at least a 90 percent overall reduction efficiency and approved by the Agency and approved by the USEPA.

## Section 219.462 Green Tire Spraying Operations

The owner or operator of a green tire spraying operation at a pneumatic rubber tire manufacturing facility shall:

- a) Install and operate:
  - 1) A capture system with a minimum capture efficiency of 90 percent by weight of VOM; and
  - 2) A control device that meets the requirements of one of the following:
    - A) A carbon adsorption system designed and operated in a manner such that there is at least 90 percent removal of VOM by weight from the bases ducted to the control device;



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- B) An afterburning system that oxidizes at least 90 percent of the captured nonmethane VOM (measured as total combustible carbon) to carbon dioxide and water; or
- C) An alternative VOM emission reduction system demonstrated to have at least a 90 percent overall reduction efficiency approved by the Agency and approved by the USEPA as a SIP revision.

- b) Substitute for the normal solvent-based mold release compound water-based sprays containing:

- 1) No more than five percent by volume of VOM as applied for the inside of tires;
- 2) No more than ten percent by volume of VOM as applied for the outside of tires.

## Section 219.463 Alternative Emission Reduction Systems

In lieu of complying with Section 219.461 or 219.462, the owner or operator of an emission source may utilize an alternative volatile organic emission reduction system, including an alternative production process, which is demonstrated to be equivalent to Section 219.461 or 219.462 on the basis of emissions of volatile organic matter. A treadend cementing operation shall be considered equivalent to Section 219.461 or 219.462 for the purposes of this Section if the total volatile organic emission from such operation is 10 grams or less per tire.

## Section 219.464 Testing and Monitoring

- a) Upon a reasonable request by the Agency, the owner or operator of a VOM emission source required to comply with a limit of Sections 219.461 through 219.464 shall conduct emissions testing, at such person's own expense, to demonstrate compliance.
- b) A person planning to conduct a VOM emission test to demonstrate compliance shall notify the Agency of that intent not less than 30 days before the planned initiation of the tests so the Agency may observe the test.

## Section 218.465 Compliance Dates

Every owner or operator of an emission source subject to 35 Ill. Adm. Code 215, Subpart S, as of December 31, 1987 shall have complied with its standards and limitations by December 31, 1987.

## Section 219.466 Compliance Plan

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- a) The owner or operator of an emission source shall have submitted to the Agency a compliance plan, pursuant to 35 Ill. Adm. Code 201, Subpart H, including a project completion schedule where applicable, no later than April 21, 1983.
- b) Unless the submitted compliance plan or schedule was disapproved by the Agency, the owner or operator of a facility or emission source may operate the emission source according to the plan and schedule as submitted.
- c) The plan and schedule shall meet the requirements of 35 Ill. Adm. Code 201, Subpart H, including specific interim dates as required in 35 Ill. Adm. Code 201.242.

## SUBPART T: PHARMACEUTICAL MANUFACTURING

## Section 219.480 Applicability

- a) The rules of this Subpart, except for Sections 219.483 through 219.485, apply to all emission sources of VOM, including but not limited to reactors, distillation units, dryers, storage tanks for VOL, equipment for the transfer of VOL, filters, crystallizers, washers, laboratory hoods, pharmaceutical coating operations, mixing operations and centrifuges used in manufacturing, including packaging, of pharmaceuticals, and emitting more than 6.8 kg/day (15 lbs/day) and more than 2,268 kg/year (2.5 tons/year) of VOM. If an emission source emits less than 2,268 kg/year (2.5 tons/year) of VOM, the requirements of this Subpart still apply to the emission source if VOM emissions from the emission source exceed 45.4 kg/day (100 lbs/day).
- b) Notwithstanding subsection (a), the air suspension coater/dryer, fluid bed dryers, tunnel dryers, and Accelacotas located in Libertyville Township, Lake County, Illinois shall be exempt from the rules of this Subpart, except for Sections 219.483 through 219.485, if emissions of VOM not vented to air pollution control equipment do not exceed the following levels:
- 1) for the air suspension coater/dryer: 2,268 kg/year (2.5 tons/year);
  - 2) for each fluid bed dryer: 4,535 kg/year (5.0 tons/year);
  - 3) for each tunnel dryer: 6,803 kg/year (7.5 tons/year); and
  - 4) for each Accelacota: 6,803 kg/year (7.5 tons/year).
- c) Sections 219.483 through 219.485 apply to a plant having one or more emission sources that:



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- 1) Are used to manufacture pharmaceuticals, and
- 2) Emit more than 6.8 kg/day (15 lbs/day) of VOM and more than 2,268 kg/year (2.5 tons/year) of VOM, or, if less than 2,268 kg/year (2.5 tons/year), these Sections still apply if emissions from one or more sources exceed 45.4 kg/day (100 lbs/day).
- d) No owner or operator shall violate any condition in a permit when the condition results in exclusion of an emission source from this Subpart.
- e) Any pharmaceutical manufacturing source that becomes subject to the provisions of this Subpart at any time shall remain subject to the provisions of this Subpart at all times.
- f) Emissions subject to this Subpart shall be controlled at all times consistent with the requirements set forth in this Subpart.
- g) Any control device required pursuant to this Subpart shall be operated at all times when the source it is controlling is operated.
- h) Determinations of daily and annual emissions for purposes of this Section shall be made using both data on the hourly emission rate (or the emissions per unit of throughput) and appropriate daily and annual data from records of emission source operation (or material throughput or material consumption data). In the absence of representative test data pursuant to Section 219.487 for the hourly emission rate (or the emissions per unit of throughput), such items shall be calculated using engineering calculations, including the methods described in Appendix B of "Control of Volatile Organic Emissions from Manufacturing of Synthesized Pharmaceutical Products" (EPA-450/2-78-029), incorporated by reference in Section 219.112. (This subsection shall not affect the Agency's or the USEPA's authority to require emission tests to be performed pursuant to Section 219.487.)

#### Section 219.481 Control of Reactors, Distillation Units, Crystallizers, Centrifuges and Vacuum Dryers

- a) The owner or operator shall equip all reactors, distillation units, crystallizers, centrifuges and vacuum dryers that are used to manufacture pharmaceuticals with surface condensers or other air pollution control equipment listed in subsection (b). If a surface condenser is used, it shall be operated such that the condenser outlet gas temperature does not exceed:

- 1) 248.2°K (-13°F) when condensing VOM of vapor pressure greater than 40.0 kPa (5.8 psi) at 294.3°K (70°F), or

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- 2) 258.2°K (5°F) when condensing VOM of vapor pressure greater than 20.0 kPa (2.9 psi) at 294.3°K (70°F), or
- 3) 273.2°K (32°F) when condensing VOM of vapor pressure greater than 10.0 kPa (1.5 psi) at 294.3°K (70°F), or
- 4) 283.2°K (50°F) when condensing VOM of vapor pressure greater than 7.0 kPa (1.0 psi) at 294.3°K (70°F), or
- 5) 298.2°K (77°F) when condensing VOM of vapor pressure greater than 3.45 kPa (0.5 psi) at 294.3°K (70°F).
- b) If a scrubber, carbon adsorber, thermal afterburner, catalytic afterburner, or other air pollution control equipment other than a surface condenser is used, such equipment shall provide a reduction in the emissions of VOM of 90 percent or more.
- c) The owner or operator shall enclose all centrifuges used to manufacture pharmaceuticals and that have an exposed VOL surface, where the VOM in the VOL has a vapor pressure of 3.45 kPa (0.5 psi) or more at 294.3°K (70°F), except as production, sampling, maintenance, or inspection procedures require operator access.

#### Section 219.482 Control of Air Dryers, Production Equipment Exhaust Systems and Filters

- a) The owner or operator of an air dryer or production equipment exhaust system used to manufacture pharmaceuticals shall control the emissions of VOM from such emission sources by air pollution control equipment which reduces by 90 percent or more the VOM that would otherwise be emitted into the atmosphere.
- b) The owner or operator shall enclose all rotary vacuum filters and other filters used to manufacture pharmaceuticals and that have an exposed VOL surface, where the VOM in the VOL has a vapor pressure of 3.45 kPa (0.5 psi) or more at 294°K (70°F), except as production, sampling, maintenance, or inspection procedures require operator access.

#### Section 219.483 Material Storage and Transfer

The owner or operator of a pharmaceutical manufacturing plant shall:

- a) Provide a vapor balance system that is at least 90 percent effective in reducing VOM emissions from truck or railcar deliveries to storage tanks with capacities equal to or greater than 7.57 m<sup>3</sup> (2,000 gal) that store VOL with vapor pressures greater than 28.0 kPa (4.1 psi) at 294.3°K (70°F), and



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- b) Install, operate, and maintain pressure/vacuum conservation vents set at 0.2 kPa (0.03 psi) or greater on all storage tanks that store VOL with vapor pressures greater than 10 kPa (1.5 psi) at 294.3°K (70°F).

## Section 219.484 In-Process Tanks

The owner or operator shall install covers on all in-process tanks used to manufacture pharmaceuticals and containing a VOL at any time. These covers must remain closed, except as production, sampling, maintenance or inspection procedures require operator access.

## Section 219.485 Leaks

The owner or operator of a pharmaceutical manufacturing plant shall repair any component from which a leak of VOL can be observed. The repair shall be completed as soon as practicable but no later than 15 days after the leak is found. If the leaking component cannot be repaired until the process unit is shut down, the leaking component must then be repaired before the unit is restarted.

## Section 219.486 Other Emission Sources

The owner or operator of a washer, laboratory hood, tablet coating operation, mixing operation or any other process emission source not subject to Sections 219.481 through 219.485, and used to manufacture pharmaceuticals shall control the emissions of VOM from such emission sources by:

- a) Air pollution control equipment which reduces by 81 percent or more the VOM that would otherwise be emitted to the atmosphere, or
- b) A surface condenser which captures all the VOM which would otherwise be emitted to the atmosphere and which meets the requirements of Section 219.481(a) and (b).

## Section 219.487 Testing

- a) Upon request by the Agency or the USEPA, the owner or operator of any VOM emission source subject to this Subpart or exempt from this Subpart by virtue of the provisions of Section 219.480 shall, at his own expense, demonstrate compliance to the Agency and the USEPA by the methods or procedures listed in Section 219.105(f)(1).

- b) A person planning to conduct a VOM emissions test to demonstrate compliance with this Subpart shall notify the Agency and the USEPA of that intent not less than 30 calendar days before the planned initiation of the test.

## Section 219.488 Monitoring for Air Pollution Control Equipment

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- a) At a minimum, continuous monitors for the following parameters shall be installed on air pollution control equipment used to control sources subject to this Subpart:

- 1) Destruction device combustion temperature.
- 2) Temperature rise across a catalytic afterburner bed.
- 3) VOM concentration on a carbon adsorption unit to determine breakthrough.
- 4) Outlet gas temperature of a refrigerated condenser.
- 5) Temperature of a non-refrigerated condenser coolant supply system.
- b) Each monitor shall be equipped with a recording device.
- c) Each monitor shall be calibrated quarterly.
- d) Each monitor shall operate at all times while the associated control equipment is operating.

## Section 219.489 Recordkeeping for Air Pollution Control Equipment

- a) The owner or operator of a pharmaceutical manufacturing facility shall maintain the following records:
  - 1) Parameters listed in Section 219.488(a)(1) shall be recorded.
  - 2) For sources subject to Section 219.481, the vapor pressure of VOM being controlled shall be recorded for every process.
- b) For any leak subject to Section 219.485 which cannot be readily repaired within one hour after detection, the following records shall be kept:
  - 1) The name of the leaking equipment.
  - 2) The date and time the leak is detected.
  - 3) The action taken to repair the leak, and
  - 4) The data and time the leak is repaired.
- c) The following records shall be kept for emission sources subject to Section 219.484 which contain VOL:



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- 1) For maintenance and inspection:
  - A) The date and time each cover is opened.
  - B) The length of time the cover remains open, and
  - C) The reason why the cover is opened.
- 2) For production and sampling, detailed written procedures or manufacturing directions specifying the circumstances under which covers may be opened and the procedures for opening covers.
- d) For each emission source used in the manufacture of pharmaceuticals for which the owner or operator of a pharmaceutical manufacturing plant claims emission standards are not applicable, because the emissions are below the applicability cutoffs in Section 219.480(a) or 219.480(b), the owner or operator shall:
  - 1) Maintain a demonstration including detailed engineering calculations of the maximum daily and annual emissions for each such emission source showing that the emissions are below the applicability cutoffs in Section 219.480(a) or 219.480(b), as appropriate, for the current and prior calendar years;
  - 2) Maintain appropriate operating records for each such emission source to identify whether the applicability cutoffs in Section 219.480(a) or 219.480(b), as appropriate, are ever exceeded; and
  - 3) Provide written notification to the Agency and the USEPA within 30 days of a determination that such an emission source has exceeded the applicability cutoffs in Section 219.480(a) or 219.480(b), as appropriate.
- e) Records required under subsection (a) shall be maintained by the owner or operator for a minimum of two years after the date on which they are made.
- f) Copies of the records shall be made available to the Agency or the USEPA upon verbal or written request.

## SUBPART V: AIR OXIDATION PROCESSES

## Section 219.521 Definitions

In addition to the definitions of 35 Ill. Adm. Code 211, the following definitions apply to this Subpart:

"Air Oxidation Process": any unit process including ammoxidation and oxychlorination which uses air or a combination of air and oxygen as

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an oxidant in combination with one or more organic reactants to produce one or more organic compounds.

"Cost Effectiveness": the annual expense for cost of control of a given process stream divided by the reduction in emissions of organic material of that stream.

"Flow (F)": Vent stream flowrate (scm/min) at a standard temperature of 20°C.

"Full Operating Flowrate": Maximum operating capacity of the facility.

"Hourly Emissions (E)": Hourly emissions reported in kg/hr measured at full operating flowrate.

"Net Heating Value (H)": Vent stream net heating value (MJ/scm), where the net enthalpy per mole of offgas is based on combustion at 25°C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20°C, as in the definition of "Flow."

"Process Vent Stream": An emission stream resulting from an air oxidation process.

"Total Resource Effectiveness Index (TRE)": Cost effectiveness in dollars per megagram of controlling any gaseous stream vented to the atmosphere from an air oxidation process divided by \$1600/Mg, using the criteria and methods set forth in this Subpart and Appendices C and D.

## Section 219.525 Emission Limitations for Air Oxidation Processes

- a) No person shall cause or allow the emission of volatile organic material (VOM) from any process vent stream unless the process vent stream is vented to a combustion device which is designed and operated either:
  - 1) To reduce the volatile organic emissions vented to it with an efficiency of at least ninety eight percent (98%) by weight; or
  - 2) To emit VOM at a concentration less than twenty parts per million by volume, dry basis.
- b) Air oxidation facilities for which an existing combustion device is employed to control process VOM emissions are not required to meet the 98 percent emissions limit until the combustion device is replaced for other reasons, which shall be considered to include, but



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not be limited to, normal maintenance, malfunction, accident, and obsolescence. The combustion device is considered to be replaced when:

- 1) All of the device is replaced; or
  - 2) When the cost of the repair of the device or the cost of replacement of part of the device exceeds 50% of the cost of replacing the entire device with a device which complies.
- c) The limitations of subsection (a) do not apply to any process vent stream or combination of process vent streams which has a Total Resource Effectiveness Index (TRE) greater than 1.0, as determined by the following methods:

- 1) If an air oxidation process has more than one process vent stream, TRE shall be based upon a combination of the process vent streams.
- 2) TRE of a process vent stream shall be determined according to the following equation:

$$TRE = E^{-1} [a + bF^n + cF + dFH + e(FH)^n + fF^{0.5}]$$

where:

$$n = 0.88$$

TRE = Total resource effectiveness index.

F = Vent stream flowrate (scm/min), at a standard temperature of 20°C.

E = Hourly measured emissions in kg/hr.

H = Net heating value of vent stream (MJ/scm), where the net enthalpy per mole of offgas is based on combustion at 25°C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20°C, as in the definition of "Flow".

a, b, c, d, e and f = Coefficients obtained by use of Appendix F.

- 3) For nonchlorinated process vent streams, if the net heating value, H, is greater than 3.6 MJ/scm, F shall be replaced by F' for purposes of calculating TRE. F' is computed as follows:

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$$F' = FH / 3.6$$

where F and H are as defined in subsection (c)(2).

- 4) The actual numerical values used in the equation described in subsection (c)(2) shall be determined as follows:

A) All reference methods and procedures for determining the flow, (F), hourly emissions, (E), and net heating, (H), value shall be in accordance with Appendix C.

B) All coefficients described in subsection (c)(2) shall be in accordance with Appendix D.

## Section 219.526 Testing and Monitoring

- a) Upon reasonable request by the Agency, the owner or operator of an air oxidation process shall demonstrate compliance with this Subpart by use of the methods specified in Appendix C. This Section does not limit the USEPA's authority, under the Clean Air Act, to require demonstrations of compliance.

- b) A person planning to conduct a VOM emissions test to demonstrate compliance with this Subpart shall notify the Agency of that intent not less than 30 days before the planned initiation of the tests so that the Agency may observe the test.

## Section 219.527 Compliance Date

Each owner or operator of an emission source subject to 35 Ill. Adm. Code 215, Subpart V, as of December 31, 1987 shall have complied with the standards and limitations of 35 Ill. Adm. Code 215, Subpart V, by December 31, 1987.

## SUBPART W: AGRICULTURE

## Section 219.541 Pesticide Exception

The provisions of Sections 219.301 and 219.302 shall not apply to the spraying or use of insecticides, herbicides or other pesticides.

## SUBPART X: CONSTRUCTION

## Section 219.561 Architectural Coatings

No person shall cause or allow the sale or use of any architectural coating containing more than 20 percent by volume of photo-chemically reactive material in containers having a capacity of more than one gallon.



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- 5) The stationary storage tank is equipped with a submerged loading pipe.
- b) Subject to subsection (f), no person may cause or allow the transfer of gasoline from a stationary storage tank located at a bulk gasoline plant into a delivery vessel unless:

- 1) The requirements set forth in subsections (a)(1) through (a)(4) are met, and
  - 2) Equipment is available at the bulk gasoline plant to provide for the submerged filling of the delivery vessel or the delivery vessel is equipped for bottom loading.
- c) Subject to subsection (e), each owner of a stationary storage tank located at a bulk gasoline plant shall:
- 1) Equip each stationary storage tank with a vapor control system that meets the requirements of subsection (a) or (b), whichever is applicable,
  - 2) Provide instructions to the operator of the bulk gasoline plant describing necessary maintenance operations and procedures for prompt notification of the owner in case of any malfunction of a vapor control system, and
  - 3) Repair, replace or modify any worn out or malfunctioning component or element of design.

- d) Subject to subsection (e), each operator of a bulk gasoline plant shall:
- 1) Maintain and operate each vapor control system in accordance with the owner's instructions,
  - 2) Promptly notify the owner of any scheduled maintenance or malfunction requiring replacement or repair of a major component of a vapor control system, and
  - 3) Maintain gauges, meters or other specified testing devices in proper working order,
  - 4) Operate the bulk plant vapor collection system and gasoline loading equipment in a manner that prevents:

- A) Gauge pressure from exceeding 45.7 cm (18 in.) of water and vacuum from exceeding 15.2 cm (6 in.) of water, as measured as close as possible to the vapor hose connection, and

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Section 219.562 Paving Operations

The provisions of Sections 219.301 and 219.302 shall not apply to the application of paving asphalt and pavement marking paint from sunrise to sunset.

Section 219.563 Cutback Asphalt

- a) No person shall cause or allow the use or application of cutback asphalt for paving, resurfacing, reconditioning, repairing or otherwise maintaining a roadway unless:
  - 1) The use or application of the cutback asphalt commences on or after October 1 of any year and such use or application is completed by April 30 of the following year; or
  - 2) The cutback asphalt is a long-life stockpile material which remains in stock after April 30 of each year and as such it may be used until depleted for patching potholes and for other similar repair work; or
  - 3) The cutback asphalt is to be used solely as an asphalt prime coat.
- b) Sources subject to this Section are not required to submit or obtain an Agency approved compliance plan or project completion schedule under 35 Ill. Adm. Code 201, Subpart H.

SUBPART Y: GASOLINE DISTRIBUTION

Section 219.581 Bulk Gasoline Plants

- a) Subject to Subsection (e), no person may cause or allow the transfer of gasoline from a delivery vessel into a stationary storage tank located at a bulk gasoline plant unless:
  - 1) The delivery vessel and the stationary storage tank are each equipped with a vapor collection system that meets the requirements of subsection (d)(4),
  - 2) Each vapor collection system is operating,
  - 3) The delivery vessel displays the appropriate sticker pursuant to the requirements of Sections 219.584 (b) or (d),
  - 4) The pressure relief valve(s) on the stationary storage tank and the delivery vessel are set to release at no less than 0.7 psi or the highest pressure allowed by state or local fire codes or the guidelines of the National Fire Prevention Association, and



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- B) A reading equal to or greater than 100 percent of the lower explosive limit (LEL measured as propane) when tested in accordance with the procedure described in "Control of Volatile Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection Systems", Appendix B, EPA 450/2-78-051, (incorporated by reference in Section 219.112), and
- C) Avoidable leaks of liquid during loading or unloading operations.
- 5) Provide a pressure tap or equivalent on the bulk plant vapor collection system in order to allow the determination of compliance with subsection (d)(4)(A), and
- 6) Within 15 business days after discovery of any leak by the owner, the operator, the Agency or the USEPA, repair and retest a vapor collection system which exceeds the limits of subsection (d)(4)(A) or (B).
- e) The requirements of subsections (a), (c) and (d) shall not apply to:
  - 1) Any stationary storage tank with a capacity of less than 2,177 l (575 gal), or
  - 2) Any bulk gasoline plant whose daily gasoline throughput is less than 15,140 l (4,000 gal/day) on a thirty-day rolling average.
- f) The requirements of subsection (b) shall apply only to bulk gasoline plants whose daily gasoline throughput is greater than or equal to 15,140 l (4,000 gal/day) on a thirty-day rolling average.
- g) Any bulk gasoline plant which is ever subject to subsections (a), (b), (c), or (d) shall always be subject to these paragraphs.

## Section 219.582 Bulk Gasoline Terminals

- a) No person shall cause or allow the transfer of gasoline into any delivery vessel from any bulk gasoline terminal unless:
  - 1) The bulk gasoline terminal is equipped with a vapor control system that limits emission of VOM to 80 mg/l (0.00067 lbs/gal) of gasoline loaded;
  - 2) The vapor control system is operating and all vapors displaced in the loading of gasoline to the delivery vessel are vented only to the vapor control system;

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- 3) There is no liquid drainage from the loading device when it is not in use;
- 4) All loading and vapor return lines are equipped with fittings which are vapor tight; and
- 5) The delivery vessel displays the appropriate sticker pursuant to the requirements of Section 219.584(b) or (d); or, if the terminal is driver-loaded, the terminal owner or operator shall be deemed to be in compliance with this Section when terminal access authorization is limited to those owners and/or operators of delivery vessels who have provided a current certification as required by Section 219.584(c)(3).
- b) Bulk gasoline terminals were required to take certain actions to achieve compliance which are summarized in 35 Ill. Adm. Code 215, Appendix C.
- c) The operator of a bulk gasoline terminal shall:
  - 1) Operate the terminal vapor collection system and gasoline loading equipment in a manner that prevents:
    - A) Gauge pressure from exceeding 18 inches of water and vacuum from exceeding 6 inches of water as measured as close as possible to the vapor hose connection; and
    - B) A reading equal to or greater than 100 percent of the lower explosive limit (LEL measured as propane) when tested in accordance with the procedure described in EPA 450/2-78-051 Appendix B incorporated by reference in Section 219.112; and
    - C) Avoidable leaks of liquid during loading or unloading operations.
  - 2) Provide a pressure tap or equivalent on the terminal vapor collection system in order to allow the determination of compliance with Section 219.582(d)(1)(A); and
  - 3) Within 15 business days after discovery of the leak by the owner, operator, or the Agency repair and retest a vapor collection system which exceeds the limits of subsection (c)(1)(A) or (B).

## Section 219.583 Gasoline Dispensing Facilities

- a) Subject to subsection (b), no person shall cause or allow the transfer of gasoline from any delivery vessel into any stationary storage tank at a gasoline dispensing facility unless:



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- 1) The tank is equipped with a submerged loading pipe; and
- 2) The vapors displaced from the storage tank during filling are processed by a vapor control system that includes one or more of the following:
  - A) A vapor collection system that meets the requirements of subsection (d)(4); or
  - B) A refrigeration-condensation system or any other system approved by the Agency and approved by the USEPA as a SIP revision, that recovers at least 90 percent by weight of all vaporized organic material from the equipment being controlled; and
  - C) The delivery vessel displays the appropriate sticker pursuant to the requirements of Section 219.584(b) or (d).
- b) The requirements of subsection (a)(2) shall not apply to transfers of gasoline to a stationary storage tank at a gasoline dispensing facility if:
  - 1) The tank is equipped with a floating roof, or other system of equal or better emission control as approved by the Agency and approved by the USEPA as a SIP revision;
  - 2) The tank has a capacity of less than 2000 gallons and was in place and operating before January 1, 1979; or
  - 3) The tank has a capacity of less than 575 gallons.
- c) Subject to subsection (b), each owner of a gasoline dispensing facility shall:
  - 1) Install all control systems and make all process modifications required by subsection (a);
  - 2) Provide instructions to the operator of the gasoline dispensing facility describing necessary maintenance operations and procedures for prompt notification of the owner in case of any malfunction of a vapor control system; and
  - 3) Repair, replace or modify any worn out or malfunctioning component or element of design.
- d) Subject to subsection (b), each operator of a gasoline dispensing facility shall:

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- 1) Maintain and operate each vapor control system in accordance with the owner's instructions;
- 2) Promptly notify the owner of any scheduled maintenance or malfunction requiring replacement or repair of a major component of a vapor control system;
- 3) Maintain gauges, meters or other specified testing devices in proper working order;
- 4) Operate the vapor collection system and delivery vessel unloading points in a manner that prevents:
  - A) A reading equal to or greater than 100 percent of the lower explosive limit (LEL measured as propane) when tested in accordance with the procedure described in EPA 450/2-78-051 Appendix B, and
  - B) Avoidable leaks of liquid during the filling of storage tanks; and
- 5) Within 15 business days after discovery of the leak by the owner, operator, or the Agency, repair and retest a vapor collection system which exceeds the limits of subsection (d)(4)(A).
- e) Gasoline dispensing facilities were required to take certain actions to achieve compliance which are summarized in 35 Ill. Adm. Code 215, Appendix C.

## Section 219.584 Gasoline Delivery Vessels

- a) Any delivery vessel equipped for vapor control by use of vapor collection equipment:
  - 1) Shall have a vapor space connection that is equipped with fittings which are vapor tight;
  - 2) Shall have its hatches closed at all times during loading or unloading operations, unless a top loading vapor recovery system is used;
  - 3) Shall not internally exceed a gauge pressure of 18 inches of water or a vacuum of 6 inches of water;
  - 4) Shall be designed and maintained to be vapor tight at all times during normal operations;



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- 5) Shall not be refilled in Illinois at other than:
- A) A bulk gasoline terminal that complies with the requirements of Section 219.582 or
  - B) A bulk gasoline plant that complies with the requirements of Section 219.581(b).
- 6) Shall be tested annually in accordance with Method 27, 40 CFR 60, Appendix A, incorporated by reference in Section 219.105. Each vessel must be repaired and retested within 15 business days after discovery of the leak by the owner, operator, or the Agency, when it fails to sustain:
- A) A pressure drop of no more than three inches of water in five minutes; and
  - B) A vacuum drop of no more than three inches of water in five minutes.
- b) Any delivery vessel meeting the requirements of subsection (a) shall have a sticker affixed to the tank adjacent to the tank manufacturer's data plate which contains the tester's name, the tank identification number and the date of the test. The sticker shall be in a form prescribed by the Agency, and, for those delivery vessels subject to 35 Ill. Adm. Code 215 as of December 31, 1987 shall have been displayed no later than December 31, 1987.
- c) The owner or operator of a delivery vessel shall:
- 1) Maintain copies of any test required under subsection (a)(6) for a period of 3 years;
  - 2) Provide copies of these tests to the Agency upon request; and
  - 3) Provide annual test result certification to bulk gasoline plants and terminals where the delivery vessel is loaded.
- d) Any delivery vessel which has undergone and passed a test in another state which has a USEPA-approved leak testing and certification program will satisfy the requirements of subsection (a). Delivery vessels must display a sticker, decal or stencil approved by the state where tested or comply with the requirements of subsection (b). All such stickers, decals or stencils shall have been displayed no later than December 31, 1987, for delivery vessels subject to 35 Ill. Adm. Code 215 as of December 31, 1987.

Section 219.585 Gasoline Volatility Standards

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- a) No person shall sell, offer for sale, dispense, supply, offer for supply, or transport for use in Illinois gasoline whose Reid vapor pressure exceeds the applicable limitations set forth in subsections (b) and (c) during the regulatory control periods, which shall be July 1 to August 31 for retail outlets, wholesale purchaser-consumer facilities, and all other facilities.
- b) The Reid vapor pressure of gasoline, a measure of its volatility, shall not exceed 9.5 psi (65.5 kPa) during the regulatory control period in 1990 and each year thereafter.
- c) The Reid vapor pressure of ethanol blend gasolines shall not exceed the limitations for gasoline set forth in subsection (b) by more than 1.0 psi (6.9 kPa). Notwithstanding this limitation, blenders of ethanol blend gasolines whose Reid vapor pressure is less than 1.0 psi above the base stock gasoline immediately after blending with ethanol are prohibited from adding butane or any product that will increase the Reid vapor pressure of the blended gasoline.
- d) All sampling of gasoline required pursuant to the provisions of this Section shall be conducted by one or more of the following approved methods or procedures which are incorporated by reference in Section 215.105.
  - 1) For manual sampling, ASTM D4057;
  - 2) For automatic sampling, ASTM D4177;
  - 3) Sampling procedures for Fuel Volatility, 40 CFR 80 Appendix D.
- e) The Reid vapor pressure of gasoline shall be measured in accordance with either test method ASTM D323 or a modification of ASTM D323 known as the "dry method" as set forth in 40 CFR 80, Appendix E, incorporated by reference in 35 Ill. Adm. Code 215.105. For gasoline - oxygenate blends which contain water-extractable oxygenates, the Reid vapor pressure shall be measured using the dry method test.
- f) The ethanol content of ethanol blend gasolines shall be determined by use of one of the approved testing methodologies specified in 40 CFR 80, Appendix F, incorporated by reference in 35 Ill. Adm. Code 215.105.
- g) Any alternate to the sampling or testing methods or procedures contained in subsections (d), (e), and (f) must be approved by the Agency, which shall consider data comparing the performance of the proposed alternative to the performance of one or more approved test methods or procedures. Such data shall accompany any request for Agency approval of any alternate test procedure. If the Agency



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determines that such data demonstrates that the proposed alternative will achieve results equivalent to the approved test methods or will achieve results equivalent to the approved test methods or procedures, the Agency shall approve the proposed alternative.

- h) Each refiner or supplier that distributes gasoline or ethanol blends shall:

1) During the regulatory control period, state that the Reid vapor pressure of all gasoline or ethanol blends leaving the refinery or distribution facility for use in Illinois complies with the Reid vapor pressure limitations set forth in 35 Ill. Adm. Code 215.585(b) and (c). Any facility receiving this gasoline shall be provided with a copy of an invoice, bill of lading, or other documentation used in normal business practice stating that the Reid vapor pressure of the gasoline complies with the State Reid vapor pressure standard.

2) Maintain records for a period of one year on the Reid vapor pressure, quantity shipped and date of delivery of any gasoline or ethanol blends leaving the refinery or distribution facility for use in Illinois. The Agency shall be provided with copies of such records if requested.

## SUBPART Z: DRY CLEANERS

## Section 219.601 Perchloroethylene Dry Cleaners

The owner or operator of a dry cleaning facility which uses perchloroethylene shall:

- a) Vent the entire dryer exhaust through a properly designed and functioning carbon adsorption system or equally effective control device; and
- b) Emit no more than 100 ppmv of VOM from the dryer control device before dilution, or achieve a 90 percent average reduction before dilution; and
- c) Immediately repair all components found to be leaking liquid VOM; and
- d) Cook or treat all diatomaceous earth filters so that the residue contains 25 kg (55 lb) or less of volatile organic material per 100 kg (220 lb) of wet waste material; and
- e) Reduce the vVOM from all solvent stills to 60 kg (132 lb) or less per 100 kg (220 lb) of wet waste material; and

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- f) Drain all filtration cartridges in the filter housing or other sealed container for at least 24 hours before discarding the cartridges; and
- g) Dry all drained filtration cartridges in equipment connected to an emission reduction system or in a manner that will eliminate emission of volatile organic material to the atmosphere.

## Section 219.602 Exemptions

The provisions of Section 219.601 are not applicable to perchloroethylene dry cleaning operations which are coin-operated or to dry cleaning facilities consuming less than 30 gal per month (360 gal per year) of perchloroethylene.

## Section 219.603 Leaks

The presence of leaks shall be determined for purposes of Section 219.601(c) by a visual inspection of the following: hose connections, unions, couplings and valves; machine door gaskets and seatings; filter head gasket and seating; pumps; base tanks and storage containers; water separators; filter sludge recovery; distillation unit; diverter valves; saturated lint from lint baskets; and cartridge filters.

## Section 219.604 Compliance Dates

Every owner or operator of an emission source previously subject to 35 Ill. Adm. Code 215, Subpart Z shall have complied with its standards and limitations in accordance with the applicable dates set forth in 35 Ill. Adm. Code 215.604.

## Section 219.605 Compliance Plan

- a) The owner or operator of an emission source subject to this Subpart shall have submitted to the Agency a compliance plan, pursuant to 35 Ill. Adm. Code 201, Subpart H, including a project completion schedule where applicable, no later than, for Section 219.601(a) and (b), April 21, 1983.
- b) Unless the submitted compliance plan or schedule was disapproved by the Agency, the owner or operator of a facility or emission source may operate the emission source according to the plan and schedule as submitted.
- c) The plan and schedule shall meet the requirements of 35 Ill. Adm. Code 201, Subpart H, including specific interim dates as required in 35 Ill. Adm. Code 201.242.

## Section 219.606 Exception to Compliance Plan



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Coin-operated dry cleaning operations and dry cleaning facilities consuming less than 30 gal per month (360 gal per year) of perchloroethylene are not required to submit or obtain an Agency approved compliance plan or project completion schedule.

## Section 219.607 Standards for Petroleum Solvent Dry Cleaners

- a) The owner or operator of a petroleum solvent dry cleaning dryer shall either:
  - 1) Limit emissions of volatile organic material to the atmosphere to an average of 3.5 kilograms of VOM per 100 kilograms dry weight of articles dry cleaned, or
  - 2) Install and operate a solvent recovery dryer in a manner such that the dryer remains closed and the recovery phase continues until a final solvent flow rate of 50 ml per minute is attained.
- b) The owner or operator of a petroleum solvent filtration system shall either:
  - 1) Reduce the VOM content in all filtration wastes to 1.0 kilogram or less per 100 kg dry weight of articles dry cleaned, before disposal, and exposure to the atmosphere, or
  - 2) Install and operate a cartridge filtration system, and drain the filter cartridges in their sealed housings for 8 hours or more before their removal.

## Section 219.608 Operating Practices for Petroleum Solvent Dry Cleaners

In order to minimize fugitive solvent emissions, the owner or operator of a petroleum solvent dry cleaning facility shall employ good housekeeping practices including the following:

- a) General Housekeeping Requirements
  - 1) Equipment containing solvent (washers, dryers, extractors and filters) shall remain closed at all times except during load transfer and maintenance. Lint filter and button trap covers shall remain closed except when solvent-laden material is being removed.
  - 2) Cans, buckets, barrels and other containers of solvent or of solvent-laden material shall be covered except when in use.
  - 3) Solvent-laden material shall be exposed to the atmosphere only for the minimum time necessary for load transfer.

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## b) Installation and operation of equipment:

- 1) All cartridge filters shall be enclosed and operated in accordance with the procedures and specifications recommended by the manufacturer for the cartridge filter. After installation, the cartridges shall be inspected, monitored and maintained in accordance with the manufacturer's recommendations; and
- 2) Vents on containers for new solvent and for solvent-containing waste shall be constructed and maintained so as to minimize solvent vapor emissions. Criteria for the minimization of solvent vapor emissions include the elimination of solvent buckets and barrels standing open to the atmosphere, and the repair of gaskets and seals that expose solvent-rich environments to the atmosphere, to be determined through visual inspection.

## Section 219.609 Program for Inspection and Repair of Leaks

- a) The owner or operator of a petroleum solvent dry cleaning facility shall conduct the following visual inspections on a weekly basis:
  - 1) Washers, dryers, solvent filters, settling tanks, vacuum stills and containers and conveyors of petroleum solvent shall be inspected for visible leaks of solvent liquid.
  - 2) Pipes, hoses and fittings shall be inspected for active dripping or dampness.
  - 3) Pumps and filters shall be inspected for leaks around seals and access covers.
  - 4) Gaskets and seals shall be inspected for wear and defects.
- b) Leaks of petroleum solvent liquid and vapors shall be repaired within three working days of detection, unless necessary replacement parts are not on site.
  - 1) If necessary, repair parts shall be ordered within three working days of detection of the leak..
  - 2) The leak shall be repaired within three days of delivery of necessary parts.

## Section 219.610 Testing and Monitoring

- a) Compliance with Sections 219.607(b)(2), 215.608 and 215.609 shall be determined by visual inspection; and



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- b) Compliance with Sections 219.607(a)(2) and (b)(1) shall be determined by methods described in EPA-450/3-82-009 (1982) incorporated by reference in Section 219.112.

- c) If a control device is used to comply with Section 219.607(a)(1), then compliance shall be determined using 40 CFR 60 Appendix A, Method 25 (1984) incorporated by reference in Section 219.112.

## Section 219.611 Exemption for Petroleum Solvent Dry Cleaners

The provisions of Sections 219.607 through 219.610 shall not apply to petroleum solvent dry cleaning facilities whose emissions of volatile organic material do not exceed 91 Mg (100 tons) per year in the absence of pollution control equipment or whose emissions of VOM, as limited by the operating permit, will not exceed 91 Mg (100 tons) per year in the absence of pollution control equipment.

## Section 219.612 Compliance Dates

Owners and operators of emission sources subject to 35 Ill. Adm. Code 215.607 through 215.609 as of December 31, 1987 shall have complied with the requirements set forth therein no later than December 31, 1987.

## Section 219.613 Compliance Plan

- a) The owner or operator of an emission source formerly subject to 35 Ill. Adm. Code 215.610(a) as of May 31, 1987 shall have submitted to the Agency a compliance plan, including a project completion schedule where applicable, no later than May 31, 1987.

- b) The plan and schedule shall meet the requirements of 35 Ill. Adm. Code 201.

## SUBPART AA: PAINT AND INK MANUFACTURING

## Section 219.620 Applicability

- a) This subpart shall apply to all paint and ink manufacturing plants which:

- 1) Include process emission sources not subject to Subparts B, E, F (excluding Section 219.204(1)), H (excluding Section 219.405), Q, R, S, V, X, Y or Z of this Part; and which as a group both:

- A) have maximum theoretical emissions of 91 Mg (100 tons) or more per calendar year of VOM if no air pollution control equipment were used, and

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- B) are not limited to less than 91 Mg (100 tons) of VOM emissions per calendar year in the absence of air pollution control equipment, through production or capacity limitations contained in a federally enforceable construction permit or a SIP revision, or
- 2) Produce more than 7,570,820 l (2,000,000 gal) per calendar year of paint or ink formulations, which contain less than 10 percent (by weight) water, and ink formulations not containing as the primary solvents water, Magie oil or glycol.

- b) For the purposes of this Subpart, uncontrolled VOM emissions are the emissions of VOM which would result if no air pollution control equipment were used.

## Section 219.621 Exemption for Waterbase Material and Heatset-Offset Ink

The requirements of Sections 219.624 and 219.625 and Section 219.628(a) shall not apply to equipment while it is being used to produce either:

- a) paint or ink formulations which contain 10 percent or more (by weight) water, or
- b) inks containing Magie oil and glycol as the primary solvent.

## Section 219.623 Permit Conditions

No person shall violate any condition in a permit when the condition results in exclusion of the plant or an emission source from this Subpart.

## Section 219.624 Open-top Mills, Tanks, Vats or Vessels

No person shall operate an open-top mill, tank, vat or vessel with a volume of more than 45 l (12 gal) for the production of paint or ink unless:

- a) The mill, tank, vat or vessel is equipped with a cover which completely covers the mill, tank, vat or vessel opening except for an opening no larger than necessary to allow for safe clearance for a mixer shaft. Such cover shall extend at least 1.27 cm (0.5 in.) beyond the outer rim of the opening or be attached to the rim.
- b) The cover remains closed except when production, sampling, maintenance or inspection procedures require access.
- c) The cover is maintained in good condition such that, when in place, it maintains contact with the rim of the opening for at least 90 percent of the circumference of the rim.



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## Section 219.625 Grinding Mills

- a) No person shall operate a grinding mill for the production of paint or ink which is not maintained in accordance with the manufacturer's specifications.
- b) No person shall operate a grinding mill fabricated or modified after the effective date of this Subpart which is not equipped with fully enclosed screens.
- c) The manufacturer's specifications shall be kept on file at the plant by the owner or operator of the grinding mill and be made available to any person upon verbal or written request during business hours.

## Section 219.626 Storage Tanks

- a) The owner or operator shall equip tanks storing VOL with a vapor pressure greater than 10 kPa (1.5 psi) at 20°C (68°F) with pressure/vacuum conservation vents set as a minimum at  $\pm 0.2$  kPa (0.029 psi). These controls shall be operated at all times. An alternative air pollution control system may be used if it results in a greater emission reduction than these controls. Any alternative control system can be allowed only if approved by the Agency and approved by the USEPA as a SIP revision.

- b) Stationary VOL storage containers with a capacity greater than 946 l (250 gal) shall be equipped with a submerged-fill pipe or bottom fill. These controls shall be operated at all times. An alternative control system can be allowed only if approved by the Agency and approved by the USEPA as a SIP revision.

## Section 219.628 Leaks

The owner or operator of a paint or ink manufacturing plant shall, for the purpose of detecting leaks, conduct an equipment monitoring program as set forth below:

- a) Each pump shall be checked by visual inspection each calendar week for indications of leaks, that is, liquids dripping from the pump seal. If there are indications of liquids dripping from the pump seal, the pump shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected.
- b) Any pump, valve, pressure relief valve, sampling connection, open-ended valve and flange or connector containing a fluid which is at least 10 percent VOM by weight which appears to be leaking on the basis of sight, smell or sound shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected.

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- c) A weather proof, readily visible tag, in bright colors such as red or yellow, bearing an identification number and the date on which the leak was detected shall be attached to leaking equipment. The tag may be removed upon repair, that is, when the equipment is adjusted or otherwise altered to allow operation without leaking.
- d) When a leak is detected, the owner or operator shall record the date of detection and repair and the record shall be retained at the plant for at least two years from the date of each detection or each repair attempt. The record shall be made available to any person upon verbal or written request during business hours.

## Section 219.630 Clean Up

- a) No person shall clean paint or ink manufacturing equipment with organic solvent unless the equipment being cleaned is completely covered or enclosed except for an opening no larger than necessary to allow safe clearance for proper operation of the cleaning equipment, considering the method and materials being used.
- b) No person shall store organic wash solvent in other than closed containers, unless closed containers are demonstrated to be a safety hazard, or dispose of organic wash solvent in a manner such that more than 20 percent by weight is allowed to evaporate into the atmosphere.

## Section 219.636 Compliance Schedule

Every owner or operator of an emission source subject to the control requirements of this Subpart shall comply with the requirements thereof on and after a date consistent with Section 219.106.

## Section 219.637 Recordkeeping and Reporting

- a) Upon request by the Agency, the owner or operator of an emission source which claims to be exempt from the requirements of this Subpart shall submit records to the Agency within 30 calendar days from the date of the request which document that the emission source is in fact exempt from this Subpart. These records shall include (but are not limited to) the percent water (by weight) in the paint or ink being produced and the quantity of Magie oil, glycol and other solvents in the ink being produced.
- b) Every owner or operator of an emission source which is subject to the requirements of this Subpart shall maintain all records necessary to demonstrate compliance with those requirements at the facility for three years.

SUBPART 88: POLYSTYRENE PLANTS



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## Section 219.875 Applicability of Subpart BB

The provisions of this Subpart shall apply to polystyrene plants:

- a) Which use continuous processes to manufacture polystyrene - polybutadiene co-polymer; and
- b) Which fall within Standard Industrial Classification Group No. 282, Industry No. 2821, except that the manufacture of polystyrene resins need not be the primary manufacturing process at the plant.

## Section 219.877 Emissions Limitation at Polystyrene Plants

No person shall cause or allow the emissions of VOM from the material recovery section to exceed 0.12 kg of VOM per 1000 kg of polystyrene resin produced.

## Section 219.879 Compliance Date

Every owner and operator of an emission source subject to 35 Ill. Adm. Code 215, Subpart BB as of December 31, 1987, shall have complied with its standards and limitations by December 31, 1987.

## Section 219.881 Compliance Plan

- a) The owner or operator of an emission source formerly subject to the requirements of 35 Ill. Adm. Code 215 Subpart BB shall have submitted to the Agency a compliance plan in accordance with 35 Ill. Adm. Code 201, Subpart H, including a project completion schedule on or before December 1, 1987.
- b) Unless the submitted compliance plan or schedule was disapproved by the Agency, the owner or operator of a facility or emission source subject to this Subpart may operate the emission source according to the plan and schedule as submitted.
- c) The plan and schedule shall meet the requirements of 35 Ill. Adm. Code 201, Subpart H and Section 219.883.

## Section 219.883 Special Requirements for Compliance Plan

For sources subject to this Subpart, an approvable compliance plan shall include:

- a) A description of each process which is subject to an emissions limitation;
- b) Quantification of the emissions from each process;

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- c) A description of the procedures and methods used to determine the emissions of VOM;
- d) A description of the methods which will be used to demonstrate compliance with the allowable plantwide emission limitation (Section 215.877), including a method of inventory, recordkeeping and emission calculation or measurement.

## Section 219.886 Testing and Monitoring

- a) Upon a reasonable request by the Agency, the owner or operator of a polystyrene plant subject to this Subpart shall at his own expense demonstrate compliance by use of the following method: 40 CFR 60, Appendix A, Method 25 - Determination of Total Gaseous Non-Methane Organic Emissions as Carbon (1984), incorporated by reference in Section 219.112.
- b) A person planning to conduct a VOM emissions test to demonstrate compliance with this Subpart shall notify the Agency of that intent not less than 30 days before the planned initiation of the tests so the Agency may observe the test.

## SUBPART PP: MISCELLANEOUS FABRICATED PRODUCT MANUFACTURING PROCESSES

## Section 219.920 Applicability

- a) The requirements of this Subpart shall apply to a plant's miscellaneous fabricated product manufacturing process emission sources which are not included within any of the source categories specified in Subparts B, E, F, H, Q, R, S, V, X, Y or Z if the plant is subject to this Subpart. A plant is subject to this Subpart if it contains process emission sources, not regulated by Subparts B, E, F (excluding Section 219.204(a)), H (excluding Section 219.405), Q, R, S, V, X, Y or Z of this Part; which as a group both:
  - 1) have maximum theoretical emissions of 91 Mg (100 tons) or more per calendar year of VOM if no air pollution control equipment were used, and
  - 2) are not limited to less than 91 Mg (100 tons) of VOM emissions per calendar year in the absence of air pollution control equipment, through production or capacity limitations contained in a federally enforceable construction permit or a SIP revision.
- b) If a plant ceases to fulfill the criteria of subsection (a), the requirements of this Subpart shall continue to apply to a miscellaneous fabricated products manufacturing process emission source which was ever subject to the control requirements of Section 219.926.



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- c) No limits under this Subpart shall apply to emission sources with emissions of VOM to the atmosphere less than or equal to 0.91 Mg (1.0 ton) per calendar year if the total emissions from such sources not complying with Section 219.926 does not exceed 4.5 Mg (5.0 tons) per calendar year.
- d) For the purposes of this Subpart, an emission source shall be considered regulated by a Subpart if it is subject to the limits of that Subpart. An emission source is not considered regulated by a Subpart if its emissions are below the applicability cutoff level or if the source is covered by an exemption.
- e) For the purposes of this Subpart, uncontrolled VOM emissions are the emissions of VOM which would result if no air pollution control equipment were used.

## Section 219.923 Permit Conditions

No person shall violate any condition in a permit when the condition results in exclusion of the plant or an emission source from this Subpart.

## Section 219.926 Control Requirements

Every owner or operator of an emission source subject to this Subpart shall comply with the requirements of subsection (a), (b) or (c):

- a) Emission capture and control techniques which achieve an overall reduction in uncontrolled VOM emissions of at least 81 percent, or
- b) For coating lines, the daily-weighted average VOM content shall not exceed 0.42 kg VOM/l (3.5 lbs VOM/gal) of coating as applied (minus water and any compounds which are specifically exempted from the definition of VOM) during any day. Owners and operators complying with this Section are not required to comply with Section 219.301, or
- c) An alternative control plan which has been approved by the Agency and approved by the USEPA as a SIP revision.

## Section 219.927 Compliance Schedule

Every owner or operator of an emission source subject to the control requirements of this Subpart shall comply with the requirements thereof on and after a date consistent with Section 219.106.

## Section 219.928 Testing

Any owner or operator of a VOM emission source which is subject to this Subpart shall demonstrate compliance with Section 219.926 by using the applicable test methods and procedures specified in Section 219.105.

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## SUBPART QQ: MISCELLANEOUS FORMULATION MANUFACTURING PROCESSES

## Section 219.940 Applicability

- a) The requirements of this Subpart shall apply to a plant's miscellaneous formulation manufacturing process emission sources, which are not included within any of the source categories specified in Subparts B, E, F, H, Q, R, S, V, X, Y or Z of this Part if the plant is subject to this Subpart. A plant is subject to this Subpart if it contains process emission sources, not regulated by Subparts B, E, F (excluding Section 219.204(t)), H (excluding Section 219.405), Q, R, S, V, X, Y or Z of this Part; which as a group both:
- 1) have maximum theoretical emissions of 91 Mg (100 tons) or more per calendar year of VOM if no air pollution control equipment were used, and
  - 2) are not limited to less than 91 Mg (100 tons) of VOM emissions per calendar year in the absence of air pollution control equipment, through production or capacity limitations contained in a federally enforceable construction permit or a SIP revision.
- b) If a plant ceases to fulfill the criteria of subsection (a), the requirements of this Subpart shall continue to apply to a miscellaneous formulation manufacturing process emission source which was ever subject to the control requirements of Section 219.946.
- c) No limits under this Subpart shall apply to emission sources with emissions of VOM to the atmosphere less than or equal to 2.3 Mg (2.5 tons) per calendar year if the total emissions from such sources not complying with this Section does not exceed 4.5 Mg (5.0 tons) per calendar year.
- d) For the purposes of this Subpart, an emission source shall be considered regulated by a Subpart if it is subject to the limits of that Subpart. An emission source is not considered regulated by a Subpart if its emissions are below the applicability cutoff level or if the source is covered by an exemption.
- e) For the purposes of this Subpart, uncontrolled VOM emissions are the emissions of VOM which would result if no air pollution control equipment were used.

## Section 219.943 Permit Conditions

No person shall violate any condition in a permit when the condition results in exclusion of the plant or an emission source from this Subpart.



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## Section 219.946 Control Requirements

Every owner or operator of an emission source subject to this Subpart shall comply with the requirements of subsection (a) or (b) below.

- a) Emission capture and control techniques which achieve an overall reduction in uncontrolled VOM emissions of at least 81 percent, or
- b) An alternative control plan which has been approved by the Agency and approved by the USEPA as a SIP revision.

## Section 219.947 Compliance Schedule

Every owner or operator of an emission source subject to the control requirements of this Subpart shall comply with the requirements thereof on and after a date consistent with Section 219.106.

## Section 219.948 Testing

Any owner or operator of a VOM emission source which is subject to this Subpart shall demonstrate compliance with Section 219.946 by using the applicable test methods and procedures specified in Section 219.105.

## SUBPART RR: MISCELLANEOUS ORGANIC CHEMICAL MANUFACTURING PROCESSES

## Section 219.960 Applicability

- a) The requirements of this Subpart shall apply to a plant's miscellaneous organic chemical manufacturing process emission sources which are not included within any of the source categories specified in Subparts B, E, F, H, Q, R, S, V, X, Y or Z of this Part, if the plant is subject to this Subpart. A plant is subject to this Subpart if it contains process emission sources, not regulated by Subparts B, E, F (excluding Section 219.204(1)), H (excluding Section 219.405), Q, R, S, V, X, Y or Z of this Part; which as a group both:

- 1) have maximum theoretical emissions of 91 Mg (100 tons) or more per calendar year of VOM if no air pollution control equipment were used, and
- 2) are not limited to less than 91 Mg (100 tons) of VOM emissions per calendar year in the absence of air pollution control equipment, through production or capacity limitations contained in a federally enforceable construction permit or a SIP revision.

- b) If a plant ceases to fulfill the criteria of Subsection (a), the requirements of this Subpart shall continue to apply to a miscellaneous organic chemical manufacturing process emission source which was ever subject to the control requirements of Section 219.966.

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- c) No limits under this Subpart shall apply to emission sources with emissions of VOM to the atmosphere less than or equal to 0.91 Mg (1.0 ton) per calendar year if the total emissions from such sources not complying with Section 219.966 does not exceed 4.5 Mg (5.0 tons) per calendar year.

- d) For the purposes of this Subpart, an emission source shall be considered regulated by a Subpart if it is subject to the limits of that Subpart. An emission source is not considered regulated by a Subpart if its emissions are below the applicability cutoff level or if the source is covered by an exemption.

- e) For the purposes of this Subpart, uncontrolled VOM emissions are the emissions of VOM which would result if no air pollution control equipment were used.

## Section 219.963 Permit Conditions

No person shall violate any condition in a permit when the condition results in exclusion of the plant or an emission source from this Subpart.

## Section 219.966 Control Requirements

Every owner or operator of an emission source subject to this Subpart shall comply with the requirements of subsection (a) or (b) below.

- a) Emission capture and control techniques which achieve an overall reduction in uncontrolled VOM emissions of at least 81 percent, or
- b) An alternative control plan which has been approved by the Agency and approved by the USEPA as a SIP revision.

## Section 219.967 Compliance Schedule

Every owner or operator of an emission source subject to the control requirements of this Subpart shall comply with the requirements of this Subpart on and after a date consistent with Section 219.106.

## Section 219.968 Testing

Any owner or operator of a VOM emission source which is subject to this Subpart shall demonstrate compliance with Section 219.966 by using the applicable test methods and procedures specified in Section 219.105.

## SUBPART TT: OTHER EMISSION SOURCES

## Section 219.980 Applicability



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- a) The requirements of this Subpart shall apply to a plant's VOM emission sources, which are not included within any of the source categories specified in Subparts B, E, F, H, Q, R, S, V, X, Y, Z, AA, PP, QQ, or RR of this Part, if the plant is subject to this Subpart. A plant is subject to this Subpart if it contains process emission sources, not regulated by Subparts B, E, F (excluding Section 219.204(7)), H (excluding Section 219.405), Q, R, S, V, X, Y or Z of this Part, which as a group both:
- 1) have maximum theoretical emissions of 91 Mg (100 tons) or more per calendar year of VOM if no air pollution control equipment were used, and
  - 2) are not limited to less than 91 Mg (100 tons) of VOM emissions per calendar year in the absence of air pollution control equipment, through production or capacity limitations contained in a federally enforceable construction permit or a SIP revision.
- b) If a plant ceases to fulfill the criteria of subsection (a), the requirements of this Subpart shall continue to apply to an emission source which was ever subject to the control requirements of Section 219.986.
- c) No limits under this Subpart shall apply to emission sources with emissions of VOM to the atmosphere less than or equal to 2.3 Mg (2.5 tons) per calendar year if the total emissions from such sources not complying with Section 219.986 does not exceed 4.5 Mg (5.0 tons) per calendar year.
- d) For the purposes of this Subpart, an emission source shall be considered regulated by a Subpart if it is subject to the limits of that Subpart. An emission source is not considered regulated by a Subpart if its emissions are below the applicability cutoff level or if the source is covered by an exemption.
- e) The control requirements in Subparts QQ, RR, SS and TT shall not apply to sewage treatment plants, vegetable oil processing plants, coke ovens (including by-product recovery plants), fuel combustion sources, bakeries, barge loading facilities, jet engine test cells, pharmaceutical manufacturing, production of polystyrene foam insulation board (including storage and extrusion of scrap where blowing agent is added to the polystyrene resin at the plant), production of polystyrene foam packaging (not including storage and extrusion of scrap where blowing agent is added to the polystyrene resin at the plant), and iron and steel production.

## Section 219.983 Permit Conditions

No person shall violate any condition in a permit when the condition results in exclusion of the plant or an emission source from this Subpart.

Section 219.986 Control Requirements

Every owner or operator of an emission source subject to this Subpart shall comply with the requirements of subsection (a), (b) or (c) below.

- a) Emission capture and control equipment which achieve an overall reduction in uncontrolled VOM emissions of at least 81 percent, or
- b) For coating lines, the daily-weighted average VOM content shall not exceed 0.42 kg VOM/l (3.5 lbs VOM/gal) of coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied during any day. Owners and operators complying with this Section are not required to comply with Section 219.301, or
- c) An alternative control plan which has been approved by the Agency and approved by the USEPA as a SIP revision.

## Section 219.987 Compliance Schedule

Every owner or operator of an emissions source which is subject to this Subpart shall comply with the requirements of this Subpart on and after a date consistent with Section 219.106.

## Section 219.988 Testing

Any owner or operator of a VOM emission source which is subject to this Subpart shall demonstrate compliance with Section 219.986 by using the applicable test methods and procedures specified in Section 219.105.

## SUBPART UU: RECORDKEEPING AND REPORTING FOR NON-CTG SOURCES

## Section 219.990 Exempt Emission Sources

Upon request by the Agency, the owner or operator of an emission source which is exempt from the requirements of Subparts PP, QQ, RR, TT or Section 219.208(b) shall submit records to the Agency within 30 calendar days from the date of the request that document that the emission source is exempt from those requirements.

## Section 219.991 Subject Emission Sources

- a) Any owner or operator of a VOM emission source which is subject to the requirements of Subpart PP, QQ, RR or TT and complying by the use of emission capture and control equipment shall comply with the following:



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- 1) By a date consistent with Section 219.106, or upon initial start-up of a new emission source, the owner or operator of the subject VOM emission source shall perform all tests and submit to the Agency and the USEPA the results of all tests and calculations necessary to demonstrate that the subject emission source will be in compliance on and after a date consistent with Section 219.106, or on and after the initial start-up date.
- 2) On and after a date consistent with Section 219.106, or on and after the initial start-up date, the owner or operator of a subject VOM emission source shall collect and record all of the following information each day and maintain the information at the facility for a period of three years:
  - A) Control device monitoring data.
  - B) A log of operating time for the capture system, control device, monitoring equipment and the associated emission source.
  - C) A maintenance log for the capture system, control device and monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages.
- 3) On and after a date consistent with Section 219.106, the owner or operator of a subject VOM emission source shall notify the Agency in the following instances:
  - A) Any record showing a violation of the requirements of Subpart PP, QQ, RR or TT shall be reported by sending a copy of such record to the Agency within 30 days following the occurrence of the violation.
  - B) At least 30 calendar days before changing the method of compliance with Subpart PP or TT from the use of capture systems and control devices to the use of complying coatings, the owner or operator shall comply with all requirements of subsection (b)(1). Upon changing the method of compliance with Subpart PP or TT from the use of capture systems and control devices to the use of complying coatings, the owner or operator shall comply with all requirements of subsection (b).
- b) Any owner or operator of a coating line which is subject to the requirements of Subpart PP or TT and complying by means of the daily-weighted average VOM content limitation shall comply with the following:

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- 1) By a date consistent with Section 219.106, or upon initial start-up of a coating line subject to Subpart PP or TT, the owner or operator of the subject coating line shall certify to the Agency that the coating line will be in compliance on and after a date consistent with Section 219.106, or on and after the initial start-up date. Such certification shall include:
  - A) The name and identification number of each coating line which will comply by means of the daily-weighted average VOM content limitation.
  - B) The name and identification number of each coating as applied on each coating line.
  - C) The weight of VOM per volume and the volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line.
  - D) The instrument or method by which the owner or operator will accurately measure or calculate the volume of each coating as applied each day on each coating line.
  - E) The method by which the owner or operator will create and maintain records each day as required in subsection (b)(2).
  - F) An example of the format in which the records required in subsection (b)(2) will be kept.
- 2) On and after a date consistent with Section 219.106, or on and after the initial start-up date, the owner or operator of a subject coating line shall collect and record all of the following information each day for each coating line and maintain the information at the facility for a period of three years:
  - A) The name and identification number of each coating as applied on each coating line.
  - B) The weight of VOM per volume and the volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line.
  - C) The daily-weighted average VOM content of all coatings as applied on each coating line as defined in Section 219.104.
- 3) On and after a date consistent with Section 219.106, the owner



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or operator of a subject coating line shall notify the Agency in the following instances:

- A) Any record showing violation of the requirements of Subpart PP or TT shall be reported by sending a copy of such record to the Agency within 30 days following the occurrence of the violation.
- B) At least 30 calendar days before changing the method of compliance with Subpart PP or TT from the use of complying coatings to the use capture systems and control devices, the owner or operator shall comply with all requirements of subsection (a)(1). Upon changing the method of compliance with Subpart PP or TT from the use of complying coatings to the use capture systems and control devices, the owner or operator shall comply with all requirements of subsection (a).
- C) Any owner or operator of a VOM emission source which is subject to the requirements of Subpart PP, QQ, RR or TT and complying by means of an alternative control plan which has been approved by the Agency and approved by the USEPA as a SIP revision shall comply with the recordkeeping and reporting requirements specified in the alternative control plan.

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APPENDIX A  
LIST OF CHEMICALS DEFINING SYNTHETIC  
ORGANIC CHEMICAL AND POLYMER  
MANUFACTURING

CAS No. <sup>a</sup>	Chemical
105-57-7	Acetal
75-07-0	Acetaldehyde
107-89-1	Acetaldol
60-35-5	Acetamide
103-84-4	Acetanilide
64-19-7	Acetic acid
108-24-7	Acetic anhydride
67-64-1	Acetone
75-86-5	Acetone cyanohydrin
75-05-8	Acetonitrile
98-86-2	Acetophenone
75-36-5	Acetyl chloride
74-86-2	Acetylene
107-02-8	Acrolein
79-06-1	Acrylamide
79-10-7	Acrylic acid & esters
107-13-1	Acrylonitrile
124-04-9	Adipic acid
111-69-3	Adiponitrile
(b)	Alkyl naphthalenes
107-18-6	Allyl alcohol
107-05-1	Allyl chloride
1321-11-5	Aminobenzoic acid
111-41-1	Aminoethylethanolamine
123-30-8	p-aminophenol
628-63-7,	Amyl acetates
123-92-2	
71-41-0 <sup>c</sup>	Amyl alcohols
110-58-7	Amyl amine
543-59-9	Amyl chloride
110-68-7 <sup>c</sup>	Amyl mercaptans
1322-06-1	Amyl phenol
62-53-3	Aniline
142-04-1	Aniline hydrochloride
29191-52-4	Anisidine
100-66-3	Anisole
118-92-3	Anthranilic acid
84-65-1	Anthraquinone



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100-52-7	Benzaldehyde
55-21-0	Benzamide
71-43-2	Benzene
98-48-6	Benzenedisulfonic acid
98-11-3	Benzenesulfonic acid
134-81-6	Benzil
76-93-7	Benzilic acid
65-85-0	Benzoic acid
119-53-9	Benzooin
100-47-0	Benzonitrile
119-61-9	Benzophenone
98-07-7	Benzotrichloride
98-88-4	Benzoyl chloride
100-51-6	Benzyl alcohol
100-46-9	Benzylamine
120-51-4	Benzyl benzoate
100-44-7	Benzyl chloride
98-87-3	Benzyl dichloride
92-52-4	Biphenyl
80-05-7	Bisphenol A
10-86-1	Bromobenzene
27497-51-4	Bromonaphthalene
106-99-0	Butadiene
106-98-9	1-butene
123-86-4	n-butyl acetate
141-32-2	n-butyl acrylate
71-36-3	n-butyl alcohol
78-92-2	s-butyl alcohol
75-65-0	t-butyl alcohol
109-73-9	n-butylamine
13952-84-6	s-butylamine
75-64-9	t-butylamine
98-73-7	p-tert-butyl benzoic acid
107-88-0	1,3-butylene glycol
123-72-8	n-butyraldehyde
107-92-6	Butyric acid
106-31-0	Butyric anhydride
109-74-0	Butyronitrile
105-60-2	Caprolactam
75-1-50	Carbon disulfide
558-13-4	Carbon tetrabromide
55-23-5	Carbon tetrachloride
9004-35-7	Cellulose acetate
79-11-8	Chloroacetic acid
108-42-9	m-chloroaniline
95-51-2	o-chloroaniline

106-47-8	p-chloroaniline
35913-09-8	Chlorobenzaldehyde
108-90-7	Chlorobenzene
118-91-2,	Chlorobenzoic acid
535-80-8,	
74-11-3 <sup>c</sup>	
2136-81-4,	Chlorobenzotrichloride
2136-89-2,	
5216-25-1 <sup>d</sup>	
1321-03-5	
75-45-6	
25497-29-4	Chlorobenzoyl chloride
67-66-3	Chlorodifluoroethane
25586-43-0	Chlorodifluoromethane
88-73-3	Chloroform
100-00-5	Chloronaphthalene
25167-80-0	o-chloronitrobenzene
126-99-8	p-chloronitrobenzene
7790-94-5	Chlorophenols
108-41-8	Chloroprene
95-49-8	Chlorosulfonic acid
106-43-4	m-chlorotoluene
75-72-9	o-chlorotoluene
108-39-4	p-chlorotoluene
95-48-7	Chlorotrifluoromethane
106-44-5	m-cresol
1319-77-3	o-cresol
1319-77-3	p-cresol
4170-30-0	Mixed cresols
3724-65-0	Cresylic acid
98-82-8	Crotonaldehyde
80-15-9	Crotonic acid
372-09-8	Cumene
506-77-4	Cumene hydroperoxide
108-80-5	Cyanoacetic acid
108-77-0	Cyanogen chloride
110-82-7	Cyanuric acid
108-93-0	Cyanuric chloride
108-94-1	Cyclohexane
110-83-8	Cyclohexanol
108-91-8	Cyclohexanone
111-78-4	Cyclohexene
112-30-1	Cyclohexylamine
123-42-2	Cyclooctadiene
27576-04-1	Decanol
	Diacetone alcohol
	Diaminobenzoic acid



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95-76-1,  
95-82-9,  
554-00-7,  
608-27-5,  
608-31-1,  
626-43-7,  
27134-27-6<sup>6</sup>  
57311-92-9<sup>6</sup>  
541-73-1  
95-50-1  
106-46-7  
75-71-8  
111-44-4  
107-06-2  
96-23-1  
26952-23-8  
101-83-7  
109-89-7  
111-46-6  
112-36-7  
111-96-6  
112-34-5  
124-17-7  
111-90-0  
112-15-2  
111-77-3  
64-67-5  
75-37-6  
25167-70-8  
26761-40-0  
27554-26-3  
674-82-8  
124-40-3  
121-69-7  
113-10-6  
68-12-2  
57-14-7  
77-78-1  
75-18-3  
67-68-5  
120-61-6  
99-34-3  
51-28-5

## Dichloroaniline

m-dichlorobenzene  
o-dichlorobenzene  
p-dichlorobenzene  
Dichlorodifluoromethane  
Dichloroethyl ether  
1,2-dichloroethane (EDC)  
Dichlorohydrin  
Dichloropropene  
Dicyclohexylamine  
Diethylamine  
Diethylene glycol  
Diethylene glycol diethyl ether  
Diethylene glycol dimethyl ether  
Diethylene glycol monobutyl ether  
Diethylene glycol monobutyl ether  
acetate  
Diethylene glycol monoethyl ether  
Diethylene glycol monoethyl ether acetate  
Diethylene glycol monomethyl ether  
Diethyl sulfate  
Difluoroethane  
Diisobutylene  
Diisodecyl phthalate  
Diisooctyl phthalate  
Diketene  
Dimethylamine  
N,N-dimethylaniline  
N,N-dimethyl ether  
N,N-dimethylformamide  
Dimethylhydrazine  
Dimethyl sulfide  
Dimethyl sulfide  
Dimethyl sulfoxide  
Dimethyl terephthalate  
3,5-dinitrobenzoic acid  
Dinitrophenol  
Dinitrotoluene

123-91-1  
646-06-0  
122-39-4  
101-84-4  
102-08-9  
25265-71-8  
25378-22-7  
28675-17-4  
27193-86-8  
106-89-8  
64-17-5  
141-43-5<sup>c</sup>  
141-78-6  
141-97-9  
140-88-5  
75-04-7  
100-41-4  
74-96-4  
9004-57-3  
75-00-3  
105-39-5  
105-56-6  
74-85-1  
96-49-1  
107-07-3  
107-15-3  
106-93-4  
107-21-1  
111-55-7  
110-71-4  
111-76-2  
112-07-2  
110-80-5  
111-15-9  
109-86-4  
110-49-6  
122-99-6  
2807-30-9  
75-21-8  
60-29-7  
104-76-7  
122-51-0  
95-92-1  
41892-71-1  
50-00-0

Dioxane  
Dioxilane  
Diphenylamine  
Diphenyl oxide  
Diphenyl thiourea  
Dipropylene glycol  
Dodecene  
Dodecylaniline  
Dodecylphenol  
Epichlorohydrin  
Ethanol  
Ethanamines  
Ethyl acetate  
Ethyl acetoacetate  
Ethyl acrylate  
Ethylamine  
Ethylbenzene  
Ethyl bromide  
Ethylcellulose  
Ethyl chloride  
Ethyl chloroacetate  
Ethylcyanoacetate  
Ethylene  
Ethylene carbonate  
Ethylene chlorohydrin  
Ethylenediamine  
Ethylene dibromide  
Ethylene glycol  
Ethylene glycol diacetate  
Ethylene glycol dimethyl ether  
Ethylene glycol monobutyl ether  
Ethylene glycol monobutyl ether acetate  
Ethylene glycol monoethyl ether  
Ethylene glycol monoethyl ether acetate  
Ethylene glycol monoethyl ether acetate  
Ethylene glycol monomethyl ether  
Ethylene glycol monophenyl ether  
Ethylene glycol monopropyl ether  
Ethylene oxide  
Ethyl ether  
2-ethylhexanol  
Ethyl orthoformate  
Ethyl oxalate  
Ethyl sodium oxaloacetate  
Formaldehyde

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75-12-7	Formamide
64-18-6	Formic acid
110-17-8	Fumaric acid
98-01-1	Furfural
56-81-5	Glycerol (Synthetic)
26545-73-7	Glycerol dichlorohydrin
25791-96-2	Glycerol triether
56-40-6	Glycine
107-22-2	Glyoxal
118-74-1	Hexachlorobenzene
67-72-1	Hexachloroethane
36653-82-4	Hexadecyl alcohol
124-09-4	Hexamethylenediamine
629-11-8	Hexamethylene glycol
100-97-0	Hexamethylenetetramine
74-90-8	Hydrogen cyanide
123-31-9	Hydroquinone
99-96-7	p-hydroxybenzoic acid
26760-64-5	Isoamylene
78-83-1	Isobutanol
110-19-0	Isobutyl acetate
115-11-7	Isobutylene
78-84-2	Isobutyraldehyde
79-31-2	Isobutyric acid
25339-17-7	Isodecanol
26952-21-6	Isooctyl alcohol
78-78-4	Isopentane
78-59-1	Isophorone
121-91-5	Isophthalic acid
78-79-5	Isoprene
67-63-0	Isopropanol
108-21-4	Isopropyl acetate
75-31-0	Isopropylamine
75-29-6	Isopropyl chloride
25168-06-3	Isopropylphenol
463-51-4	Ketene
(b)	Linear alkyl sulfonate*
123-01-3	Linear alkylbenzene
110-16-7	Maleic acid
108-31-6	Maleic anhydride
6915-15-7	Malic acid
141-79-7	Mesityl oxide
121-47-1	Metanilic acid
79-41-4	Methacrylic acid
563-47-3	Methallyl chloride

67-56-1	Methanol
79-20-9	Methyl acetate
105-45-3	Methyl acetoacetate
74-89-5	Methylamine
100-61-8	n-methylaniline
74-83-9	Methyl bromide
37365-71-2	Methyl butynol
74-87-3	Methyl chloride
108-87-2	Methyl cyclohexane
1331-22-2	Methyl cyclohexanone
75-09-2	Methylene chloride
101-77-9	Methylene dianiline
101-68-8	Methylene diphenyl diisocyanate
78-93-3	Methyl ethyl ketone
107-31-3	Methyl formate
108-11-2	Methyl isobutyl carbinol
108-10-1	Methyl isobutyl ketone
80-62-6	Methyl methacrylate
77-75-8	Methylpentynol
98-83-9	B-methylstyrene
110-91-8	Morpholine
85-47-2	a-naphthalene sulfonic acid
120-18-3	B-naphthalene sulfonic acid
90-15-3	a-naphthol
135-19-3	B-naphthol
75-98-9	Neopentanoic acid
88-74-4	o-nitroaniline
100-01-6	p-nitroaniline
91-23-6	o-nitroanisole
100-17-4	p-nitroanisole
98-95-3	Nitrobenzene
27178-83-2 <sup>c</sup>	Nitrobenzoic acid (o, m & p)
79-24-3	Nitroethane
75-52-5	Nitromethane
25322-01-4	Nitrophenol
1321-12-6	Nitropropane
27215-95-8	Nitrotoluene
25154-52-3	Nonene
27193-28-8	Nonylphenol
123-63-7	Octylphenol
115-77-5	Paraldehyde
109-66-0	Pentaerythritol
109-67-1	n-pentane
127-18-4	1-pentene
	Perchloroethylene



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594-42-3 Perchloromethyl mercaptan  
 94-70-2 o-phenetidine  
 156-43-4 p-phenetidine  
 108-95-2 Phenol  
 98-67-9, 585-38-6, 609-46-1, 133-39-7<sup>d</sup> Phenolsulfonic acids  
 91-40-7 (b)  
 75-44-5 Phenyl anthranilic acid  
 85-44-9 Phenylenediamine  
 85-41-6 Phosgene  
 108-99-6 Phthalic anhydride  
 110-85-0 Phthalimide  
 9003-29-6,<sup>c</sup> b-picoline  
 25036-29-7<sup>c</sup> Piperazine  
 25322-68-3 Polybutenes  
 25322-69-4 Polyethylene glycol  
 123-38-6 Polypropylene glycol  
 79-09-4 Propionaldehyde  
 71-23-8 Propionic acid  
 107-10-8 n-propyl alcohol  
 540-54-5 Propylamine  
 115-07-1 Propyl chloride  
 127-00-4 Propylene  
 78-87-5 Propylene chlorohydrin  
 57-55-6 Propylene dichloride  
 75-56-9 Propylene glycol  
 110-86-1 Propylene oxide  
 106-51-4 Pyridine  
 108-46-3 Quinone  
 27138-57-4 Resorcinol  
 69-72-7 Resorcylic acid  
 127-09-3 Salicylic acid  
 532-32-1 Sodium acetate  
 9004-32-4 Sodium benzoate  
 3926-62-3 Sodium carboxymethyl cellulose  
 141-53-7 Sodium chloroacetate  
 139-02-6 Sodium formate  
 110-44-1 Sodium phenate  
 100-42-5 Sorbic acid  
 110-15-6 Styrene  
 110-61-2 Succinic acid  
 121-57-3 Succinitrile  
 Sulfanilic acid

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126-33-0 Sulfolane  
 1401-55-4 Tannic acid  
 100-21-0 Terephthalic acid  
 79-34-5<sup>c</sup> Tetrachloroethanes  
 117-08-8 Tetrachlorophthalic anhydride  
 78-00-2 Tetraethyllead  
 119-64-2 Tetrahydronaphthalene  
 85-43-8 Tetrahydrophthalic anhydride  
 75-74-1 Tetramethyllead  
 110-60-1 Tetramethylenediamine  
 110-18-9 Tetramethylethylenediamine  
 108-88-3 Toluene  
 95-80-7 Toluene-2,4-diamine  
 584-84-9 Toluene-2,4-diisocyanate  
 26471-62-5 Toluene diisocyanates (mixture)  
 1333-07-9 Toluene sulfonamide  
 104-15-4<sup>c</sup> Toluenesulfonic acids  
 98-59-9 Toluene sulfonyl chloride  
 26915-12-8 Toluoidines  
 87-61-6, 108-70-3<sup>d</sup> Trichlorobenzenes  
 120-82-1<sup>d</sup>  
 71-55-6 1,1,1-trichloroethane  
 79-00-5 1,1,2-trichloroethane  
 79-01-6 Trichloroethylene  
 75-69-4 Trichlorofluoromethane  
 96-18-4 1,2,3-trichloropropane  
 76-13-1 1,1,2-trichloro-1,2,2-trifluoroethane  
 121-44-8 Triethylamine  
 112-27-6 Triethylene glycol  
 112-49-2 Triethylene glycoldimethyl ether  
 7756-94-7 Triisobutylene  
 75-50-3 Trimethylamine  
 57-13-6 Urea  
 108-05-4 Vinyl acetate  
 75-01-4 Vinyl chloride  
 75-35-4 Vinylidene chloride  
 25013-15-4 Vinyl toluene  
 1330-20-7 Xylenes (mixed)  
 95-47-6 o-xylene  
 106-42-3 p-xylene  
 1300-71-6 Xylenol  
 1300-73-8 (b) Xylidine  
 9002-88-4 methyl tert-butyl ether  
 Polyethylene



(b)

9009-53-6

Polypropylene  
Polystyrene

a) CAS numbers refer to the Chemical Abstracts Registry numbers assigned to specific chemicals, isomers or mixtures of chemicals. Some isomers or mixtures that are covered by the standards do not have CAS numbers assigned to them. The standards apply to all of the chemicals listed, whether CAS numbers have been assigned or not.

b) No CAS number(s) have been assigned to this chemical, to its isomers, or mixtures containing these chemicals.

c) CAS numbers for some of the isomers are listed: the standards apply to all of the isomers and mixtures, even if CAS numbers have not been assigned.

## APPENDIX B

## VOC MEASUREMENT TECHNIQUES FOR CAPTURE EFFICIENCY

## Procedure G.1 - Captured VOC Emissions

## 1. INTRODUCTION

1.1 Applicability. This procedure is applicable for determining the volatile organic compounds (VOC) content of captured gas streams. It is intended to be used as a segment in the development of liquid/gas or gas/gas protocols for determining VOC capture efficiency (CE) for surface coating and printing operations. The procedure may not be acceptable in certain site-specific situations, e.g., when: (1) direct fired heaters or other circumstances affect the quantity of VOC at the control device inlet; and (2) particulate organic aerosols are formed in the process and are present in the captured emissions.

1.2 Principle. The amount of VOC captured (G) is calculated as the sum of the products of the VOC content ( $C_{gj}$ ), the flow rate ( $Q_{gj}$ ), and the sample time ( $T_c$ ) from each captured emissions point.

1.3 Estimated Measurement Uncertainty. The measurement uncertainties are estimated for each captured or fugitive emissions point as follows:  $Q_{gj} = 5.5$  percent and  $C_{gj} = \pm 5.0$  percent. Based on these numbers, the probable uncertainty for G is estimated at about  $\pm 7.4$  percent.

1.4 Sampling Requirements. A capture efficiency test shall consist of at least three sampling runs. The sampling time for each run should be at least 8 hours, unless otherwise approved.

1.5 Notes. Because this procedure is often applied in highly explosive areas, caution and care should be exercised in choosing appropriate equipment and installing and using the equipment. Mention of trade names or company products does not constitute endorsement. All gas concentrations (percent, ppm) are by volume, unless otherwise noted.

## 2. APPARATUS AND REAGENTS

2.1 Gas VOC Concentration. A schematic of the measurement



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system is shown in Figure 1. The main components are described below:

- 2.1.1 Sample Probe. Stainless steel, or equivalent. The probe shall be heated to prevent VOC condensation.
- 2.1.2 Calibration Valve Assembly. Three-way valve assembly at the outlet of sample probe to direct the zero and calibration gases to the analyzer. Other methods, such as quick-connect lines, to route calibration gases to the outlet of the sample probe are acceptable.
- 2.1.3 Sample Line. Stainless steel or Teflon tubing to transport the sample gas to the analyzer. The sample line must be heated to prevent condensation.
- 2.1.4 Sample Pump. A leak-free pump, to pull the sample gas through the system at a flow rate sufficient to minimize the response time of the measurement system. The components of the pump that contact the gas stream shall be constructed of stainless steel or Teflon. The sample pump must be heated to prevent condensation.
- 2.1.5 Sample Flow Rate Control. A sample flow rate control valve and rotameter, or equivalent, to maintain a constant sampling rate within 10 percent. The flow rate control valve and rotameter must be heated to prevent condensation. A control valve may also be located on the sample pump bypass loop to assist in controlling the sample pressure and flow rate.
- 2.1.6 Sample Gas Manifold. Capable of diverting a portion of the sample gas stream to the flame ionization analyzer (FIA), and the remainder to the bypass discharge vent. The manifold components shall be constructed of stainless steel or Teflon. If captured or fugitive emissions are to be measured at multiple locations, the measurement system shall be designed to use separate sampling probes, lines, and pumps for each measurement location and a common sample gas manifold and FIA. The sample gas manifold and connecting lines to the FIA must be heated to prevent condensation.
- 2.1.7 Organic Concentration Analyzer. An FIA with a span value of 1.5 times the expected concentration as propane; however, other span values may be used if it can be demonstrated that they would provide more accurate measurements. The system shall be capable of meeting or exceeding the following specifications:

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- 2.1.7.1 Zero Drift. Less than  $\pm 3.0$  percent of the span value.
- 2.1.7.2 Calibration Drift. Less than  $\pm 3.0$  percent of the span value.
- 2.1.7.3 Calibration Error. Less than  $\pm 5.0$  percent of the calibration gas value.
- 2.1.7.4 Response Time. Less than 30 seconds.
- 2.1.8 Integrator/Data Acquisition System. An analog or digital device or computerized data acquisition system used to integrate the FIA response or compute the average response and record measurement data. The minimum data sampling frequency for computing average or integrated values is one measurement value every 5 seconds. The device shall be capable of recording average values at least once per minute.
- 2.1.9 Calibration and Other Gases. Gases used for calibration, fuel, and combustion air (if required) are contained in compressed gas cylinders. All calibration gases shall be traceable to NIST standards and shall be certified by the manufacturer to  $\pm 1$  percent of the tag value. Additionally, the manufacturer of the cylinder should provide a recommended shelf life for each calibration gas cylinder over which the concentration does not change more than  $\pm 2$  percent from the certified value. For calibration gas values not generally available, alternative methods for preparing calibration gas mixtures, such as dilution systems, may be used with prior approval.
- 2.1.9.1 Fuel. A 40 percent  $H_2/60$  percent He or 40 percent  $H_2/60$  percent  $N_2$  gas mixture is recommended to avoid an oxygen synergism effect that reportedly occurs when oxygen concentration varies significantly from a mean value.
- 2.1.9.2 Carrier Gas. High purity air with less than 1 ppm of organic material (as propane or carbon equivalent) or less than 0.1 percent of the span value, whichever is greater.
- 2.1.9.3 FIA Linearity Calibration Gases. Low-, mid-, and high-range gas mixture standards with nominal propane concentrations of 20-30, 45-55, and 70-80 percent of the span value in air, respectively. Other calibration values and other



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span values may be used if it can be shown that more accurate measurements would be achieved.

2.1.10 Particulate Filter. An in-stack or an out-of-stack glass fiber filter is recommended if exhaust gas particulate loading is significant. An out-of-stack filter must be heated to prevent any condensation unless it can be demonstrated that no condensation occurs.

## 2.2 Captured Emissions Volumetric Flow Rate.

2.2.1 Method 2 or 2A Apparatus. For determining volumetric flow rate.

2.2.2 Method 3 Apparatus and Reagents. For determining molecular weight of the gas stream. An estimate of the molecular weight of the gas stream may be used if it can be justified.

2.2.3 Method 4 Apparatus and Reagents. For determining moisture content, if necessary.

## 3. DETERMINATION OF VOLUMETRIC FLOW RATE OF CAPTURED EMISSIONS

3.1 Locate all points where emissions are captured from the affected facility. Using Method 1, determine the sampling points. Be sure to check each site for cyclonic or swirling flow.

3.2 Measure the velocity at each sampling site at least once every hour during each sampling run using Method 2 or 2A.

## 4. DETERMINATION OF VOC CONTENT OF CAPTURED EMISSIONS

4.1 Analysis Duration. Measure the VOC responses at each captured emissions point during the entire test run or, if applicable, while the process is operating. If there are multiple captured emission locations, design a sampling system to allow a single FIA to be used to determine the VOC responses at all sampling locations.

### 4.2 Gas VOC Concentration.

4.2.1 Assemble the sample train as shown in Figure 1. Calibrate the FIA according to the procedure in Section 5.1.

4.2.2 Conduct a system check according to the procedure in

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## Section 5.3.

4.2.3 Install the sample probe so that the probe is centrally located in the stack, pipe, or duct, and is sealed tightly at the stack port connection.

4.2.4 Inject zero gas at the calibration valve assembly. Allow the measurement system response to reach zero. Measure the system response time as the time required for the system to reach the effluent concentration after the calibration valve has been returned to the effluent sampling position.

4.2.5 Conduct a system check before and a system drift check after each sampling run according to the procedures in Sections 5.2 and 5.3. If the drift check following a run indicates unacceptable performance, the run is not valid. The tester may elect to perform system drift checks during the run not to exceed one drift check per hour.

4.2.6 Verify that the sample lines, filter, and pump temperatures are  $120 \pm 5^\circ\text{C}$ .

4.2.7 Begin sampling at the start of the test period and continue to sample during the entire run. Record the starting and ending times and any required process information as appropriate. If multiple captured emission locations are sampled using a single FIA, sample at each location for the same amount of time (e.g., 2 minutes) and continue to switch from one location to another for the entire test run. Be sure that total sampling time at each location is the same at the end of the test run. Collect at least 4 separate measurements from each sample point during each hour of testing. Disregard the measurements at each sampling location until two times the response time of the measurement system has elapsed. Continue sampling for at least 1 minute and record the concentration measurements.

## 4.3 Background Concentration.

4.3.1 Locate all NDO's of the TTE. A sampling point shall be centrally located outside of the TTE at 4 equivalent diameters from each NDO, if possible. If there are more than 6 NDO's, choose 6 sampling points evenly spaced among the NDO's.

4.3.2 Assemble the sample train as shown in Figure 2. Calibrate the FIA and conduct a system check according to the procedures in



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Sections 5.1 and 5.3. NOTE: This sample train shall be a separate sampling train from the one to measure the captured emissions.

4.3.3 Position the probe at the sampling location.

4.3.4 Determine the response time, conduct the system check and sample according to the procedures described in Sections 4.2.4 to 4.2.7.

4.4 Alternative Procedure. The direct interface sampling and analysis procedure described in Section 7.2 of Method 18 may be used to determine the gas VOC concentration. The system must be designed to collect and analyze at least one sample every 10 minutes.

## 5. CALIBRATION AND QUALITY ASSURANCE

5.1 FIA Calibration and Linearity Check. Make necessary adjustments to the air and fuel supplies for the FIA and ignite the burner. Allow the FIA to warm up for the period recommended by the manufacturer. Inject a calibration gas into the measurement system and adjust the back-pressure regulator to the value required to achieve the flow rates specified by the manufacturer. Inject the zero- and the high-range calibration gases and adjust the analyzer calibration to provide the proper responses. Inject the low- and mid-range gases and record the responses of the measurement system. The calibration and linearity of the system are acceptable if the responses for all four gases are within 5 percent of the respective gas values. If the performance of the system is not acceptable, repair or adjust the system and repeat the linearity check. Conduct a calibration and linearity check after assembling the analysis system and after a major change is made to the system.

5.2 Systems Drift Checks. Select the calibration gas that most closely approximates the concentration of the captured emissions for conducting the drift checks. Introduce the zero and calibration gas at the calibration valve assembly and verify that the appropriate gas flow rate and pressure are present at the FIA. Record the measurement system responses to the zero and calibration gases. The performance of the system is acceptable if the difference between the drift check measurement and the value obtained in Section 5.1 is less than 3 percent of the span value. Conduct the system drift checks at the end of each run.

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5.3 System Check. Inject the high range calibration gas at the inlet of the sampling probe and record the response. The performance of the system is acceptable if the measurement system response is within 5 percent of the value obtained in Section 5.1 for the high range calibration gas. Conduct a system check before and after each test run.

5.4 Analysis Audit. Immediately before each test analyze an audit cylinder as described in Section 5.2. The analysis audit must agree with the audit cylinder concentration within 10 percent.

## 6. NOMENCLATURE

$A_i$  = area of NDO i, ft<sup>2</sup>.

$A_N$  = total area of all NDO's in the enclosure, ft<sup>2</sup>.

$C_{Bi}$  = corrected average VOC concentration of background emissions at point i, ppm propane.

$C_B$  = average background concentration, ppm propane.

$C_{Cj}$  = corrected average VOC concentration of captured emissions at point j, ppm propane.

$C_{DH}$  = average measured concentration for the drift check calibration gas, ppm propane.

$C_{D0}$  = average system drift check concentration for zero concentration gas, ppm propane.

$C_H$  = actual concentration of the drift check calibration gas, ppm propane.

$C_i$  = uncorrected average background VOC concentration measured at point i, ppm propane.

$C_j$  = uncorrected average VOC concentration measured at point j, ppm propane.

G = total VOC content of captured emissions, kg.

$K_1 = 1.830 \times 10^{-6} \text{ kg}/(\text{m}^3\text{-ppm}).$



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$n$  = number of measurement points.

$Q_{Gj}$  = average effluent volumetric flow rate corrected to standard conditions at captured emissions point  $j$ ,  $m^3/min$ .

$T_c$  = total duration of captured emissions sampling run, min.

## 7. CALCULATIONS

## 7.1 Total VOC Captured Emissions.

$$G = \sum_{j=1}^n (C_{Gj} - C_B) Q_{Gj} T_c K_1 \quad \text{Eq. 1}$$

7.2 VOC Concentration of the Captured Emissions at Point  $j$ .

$$C_{Gj} = (C_j - C_{D0}) \frac{C_B}{C_{DH} - C_{D0}} \quad \text{Eq. 2}$$

7.3 Background VOC Concentration at Point  $i$ .

$$C_{Bi} = (C_i - C_{D0}) \frac{C_B}{C_{DH} - C_{D0}} \quad \text{Eq. 3}$$

## 7.4 Average Background Concentration.

$$C_B = \frac{\sum_{i=1}^n C_{Bi} A_i}{n A_N} \quad \text{Eq. 4}$$

NOTE: If the concentration at each point is within 20 percent of the average concentration of all points, the terms " $A_i$ " and " $A_N$ " may be deleted from Equation 4.

## Procedure G.2 - Captured VOC Emissions (Dilution Technique)

## 1. INTRODUCTION

1.1 Applicability. This procedure is applicable for determining the volatile organic compounds (VOC) content of captured gas streams. It is intended to be used as a segment in the

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development of a gas/gas protocol in which fugitive emissions are measured for determining VOC capture efficiency (CE) for surface coating and printing operations. A dilution system is used to reduce the VOC concentration of the captured emission to about the same concentration as the fugitive emissions. The procedure may not be acceptable in certain site-specific situations, e.g., when: (1) direct fired heaters or other circumstances affect the quantity of VOC at the control device inlet; and (2) particulate organic aerosols are formed in the process and are present in the captured emissions.

1.2 Principle. The amount of VOC captured ( $G$ ) is calculated as the sum of the products of the VOC content ( $C_{Gj}$ ), the flow rate ( $Q_{Gj}$ ), and the sampling time ( $T_c$ ) from each captured emissions point.

1.3 Estimated Measurement Uncertainty. The measurement uncertainties are estimated for each captured or fugitive emissions point as follows:  $Q_{Gj} = \pm 5.5$  percent and  $C_{Gj} = \pm 5$  percent. Based on these numbers, the probable uncertainty for  $G$  is estimated at about  $\pm 7.4$  percent.

1.4 Sampling Requirements. A capture efficiency test shall consist of at least three sampling runs. The sampling time for each run should be at least 8 hours, unless otherwise approved.

1.5 Notes. Because this procedure is often applied in highly explosive areas, caution and care should be exercised in choosing appropriate equipment and installing and using the equipment. Mention of trade names or company products does not constitute endorsement. All gas concentrations (percent, ppm) are by volume, unless otherwise noted.

## 2. APPARATUS AND REAGENTS

2.1 Gas VOC Concentration. A schematic of the measurement system is shown in Figure 1. The main components are described below:

2.1.1 Dilution System. A Kipp in-stack dilution probe and controller or similar device may be used. The dilution rate may be changed by substituting different critical orifices or adjustments of the aspirator supply pressure. The dilution system shall be heated to prevent VOC condensation. Note: An out-of-stack dilution device may be used.



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2.1.2 Calibration Valve Assembly. Three-way valve assembly at the outlet of sample probe to direct the zero and calibration gases to the analyzer. Other methods, such as quick-connect lines, to route calibration gases to the outlet of the sample probe are acceptable.

2.1.3 Sample Line. Stainless steel or Teflon tubing to transport the sample gas to the analyzer. The sample line must be heated to prevent condensation.

2.1.4 Sample Pump. A leak-free pump, to pull the sample gas through the system at a flow rate sufficient to minimize the response time of the measurement system. The components of the pump that contact the gas stream shall be constructed of stainless steel or Teflon. The sample pump must be heated to prevent condensation.

2.1.5 Sample Flow Rate Control. A sample flow rate control valve and rotameter, or equivalent, to maintain a constant sampling rate within 10 percent. The flow control valve and rotameter must be heated to prevent condensation. A control valve may also be located on the sample pump bypass loop to assist in controlling the sample pressure and flow rate.

2.1.6 Sample Gas Manifold. Capable of diverting a portion of the sample gas stream to the flame ionization analyzer (FIA), and the remainder to the bypass discharge vent. The manifold components shall be constructed of stainless steel or Teflon. If captured or fugitive emissions are to be measured at multiple locations, the measurement system shall be designed to use separate sampling probes, lines, and pumps for each measurement location and a common sample gas manifold and FIA. The sample gas manifold and connecting lines to the FIA must be heated to prevent condensation.

2.1.7 Organic Concentration Analyzer. An FIA with a span value of 1.5 times the expected concentration as propane; however, other span values may be used if it can be demonstrated that they would provide more accurate measurements. The system shall be capable of meeting or exceeding the following specifications:

2.1.7.1 Zero Drift. Less than  $\pm 3.0$  percent of the span value.

2.1.7.2 Calibration Drift. Less than  $\pm 3.0$  percent of the span

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value.

2.1.7.3 Calibration Error. Less than  $\pm 5.0$  percent of the calibration gas value.

2.1.7.4 Response Time. Less than 30 seconds.

2.1.8 Integrator/Data Acquisition System. An analog or digital device or computerized data acquisition system used to integrate the FIA response or compute the average response and record measurement data. The minimum data sampling frequency for computing average or integrated values is one measurement value every 5 seconds. The device shall be capable of recording average values at least once per minute.

2.1.9 Calibration and Other Gases. Gases used for calibration, fuel, and combustion air (if required) are contained in compressed gas cylinders. All calibration gases shall be traceable to NIST standards and shall be certified by the manufacturer to  $\pm 1$  percent of the tag value. Additionally, the manufacturer of the cylinder should provide a recommended shelf life for each calibration gas cylinder over which the concentration does not change more than  $\pm 2$  percent from the certified value. For calibration gas values not generally available, alternative methods for preparing calibration gas mixtures, such as dilution systems, may be used with prior approval.

2.1.9.1 Fuel. A 40 percent  $H_2/60$  percent He or 40 percent  $H_2/60$  percent  $N_2$  gas mixture is recommended to avoid an oxygen synergism effect that reportedly occurs when oxygen concentration varies significantly from a mean value.

2.1.9.2 Carrier Gas and Dilution Air Supply. High purity air with less than 1 ppm of organic material (as propane or carbon equivalent) or less than 0.1 percent of the span value, whichever is greater.

2.1.9.3 FIA Linearity Calibration Gases. Low-, mid-, and high-range gas mixture standards with nominal propane concentrations of 20-30, 45-55, and 70-80 percent of the span value in air, respectively. Other calibration values and other span values may be used if it can be shown that more accurate measurements would be achieved.



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2.1.9.4 Dilution Check Gas. Gas mixture standard containing propane in air, approximately half the span value after dilution.

2.1.10 Particulate Filter. An in-stack or an out-of-stack glass fiber filter is recommended if exhaust gas particulate loading is significant. An out-of-stack filter must be heated to prevent any condensation unless it can be demonstrated that no condensation occurs.

2.2 Captured Emissions Volumetric Flow Rate.

2.2.1 Method 2 or 2A Apparatus. For determining volumetric flow rate.

2.2.2 Method 3 Apparatus and Reagents. For determining molecular weight of the gas stream. An estimate of the molecular weight of the gas stream may be used if it can be justified.

2.2.3 Method 4 Apparatus and Reagents. For determining moisture content, if necessary.

### 3. DETERMINATION OF VOLUMETRIC FLOW RATE OF CAPTURED EMISSIONS

3.1 Locate all points where emissions are captured from the affected facility. Using Method 1, determine the sampling points. Be sure to check each site for cyclonic or swirling flow.

3.2 Measure the velocity at each sampling site at least once every hour during each sampling run using Method 2 or 2A.

### 4. DETERMINATION OF VOC CONTENT OF CAPTURED EMISSIONS

4.1 Analysis Duration. Measure the VOC responses at each captured emissions point during the entire test run or, if applicable, while the process is operating. If there are a multiple captured emissions locations, design a sampling system to allow a single FIA to be used to determine the VOC responses at all sampling locations.

4.2 Gas VOC Concentration.

4.2.1 Assemble the sample train as shown in Figure 1. Calibrate the FIA according to the procedure in Section 5.1.

4.2.2 Set the dilution ratio and determine the dilution factor according to the procedure in Section 5.3.

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4.2.3 Conduct a system check according to the procedure in Section 5.4.

4.2.4 Install the sample probe so that the probe is centrally located in the stack, pipe, or duct, and is sealed tightly at the stack port connection.

4.2.5 Inject zero gas at the calibration valve assembly. Measure the system response time as the time required for the system to reach the effluent concentration after the calibration valve has been returned to the effluent sampling position.

4.2.6 Conduct a system check before and a system drift check after each sampling run according to the procedures in Sections 5.2 and 5.4. If the drift check following a run indicates unacceptable performance, the run is not valid. The tester may elect to perform system drift checks during the run not to exceed one drift check per hour.

4.2.7 Verify that the sample lines, filter, and pump temperatures are  $120 \pm 5^\circ\text{C}$ .

4.2.8 Begin sampling at the start of the test period and continue to sample during the entire run. Record the starting and ending times and any required process information as appropriate. If multiple captured emission locations are sampled using a single FIA, sample at each location for the same amount of time (e.g., 2 minutes) and continue to switch from one location to another for the entire test run. Be sure that total sampling time at each location is the same at the end of the test run. Collect at least 4 separate measurements from each sample point during each hour of testing. Disregard the measurements at each sampling location until two times the response time of the measurement system has elapsed. Continue sampling for at least 1 minute and record the concentration measurements.

### 4.3 Background Concentration.

4.3.1 Locate all NDO's of the TTE. A sampling point shall be centrally located outside of the TTE at 4 equivalent diameters from each NDO, if possible. If there are more than 6 NDO's, choose 6 sampling points evenly spaced among the NDO's.

4.3.2 Assemble the sample train as shown in Figure 2. Calibrate



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the FIA and conduct a system check according to the procedures in Sections 5.1 and 5.4.

4.3.3 Position the probe at the sampling location.

4.3.4 Determine the response time, conduct the system check and sample according to the procedures described in Sections 4.2.4 to 4.2.8.

4.4 Alternative Procedure. The direct interface sampling and analysis procedure described in Section 7.2 of Method 18 may be used to determine the gas VOC concentration. The system must be designed to collect and analyze at least one sample every 10 minutes.

## 5. CALIBRATION AND QUALITY ASSURANCE

5.1 FIA Calibration and Linearity Check. Make necessary adjustments to the air and fuel supplies for the FIA and ignite the burner. Allow the FIA to warm up for the period recommended by the manufacturer. Inject a calibration gas into the measurement system after the dilution system and adjust the back-pressure regulator to the value required to achieve the flow rates specified by the manufacturer. Inject the zero- and the high-range calibration gases and adjust the analyzer calibration to provide the proper responses. Inject the low- and mid-range gases and record the responses of the measurement system. The calibration and linearity of the system are acceptable if the responses for all four gases are within 5 percent of the respective gas values. If the performance of the system is not acceptable, repair or adjust the system and repeat the linearity check. Conduct a calibration and linearity check after assembling the analysis system and after a major change is made to the system.

5.2 Systems Drift Checks. Select the calibration gas that most closely approximates the concentration of the diluted captured emissions for conducting the drift checks. Introduce the zero and calibration gas at the calibration valve assembly and verify that the appropriate gas flow rate and pressure are present at the FIA. Record the measurement system responses to the zero and calibration gases. The performance of the system is acceptable if the difference between the drift check measurement and the value obtained in Section 5.1 is less than 3 percent of the span value. Conduct the system drift check at the end of each run.

5.3 Determination of Dilution Factor. Inject the dilution check gas into the measurement system before the dilution system and record the response. Calculate the dilution factor using Equation 3.

5.4 System Check. Inject the high range calibration gas at the inlet to the sampling probe while the dilution air is turned off. Record the response. The performance of the system is acceptable if the measurement system response is within 5 percent of the value obtained in Section 5.1 for the high range calibration gas. Conduct a system check before and after each test run.

5.5 Analysis Audit. Immediately before each test analyze an audit cylinder as described in Section 5.2. The analysis audit must agree with the audit cylinder concentration within 10 percent.

## 6. NOMENCLATURE

$A_i$  = area of NDO i, ft<sup>2</sup>.

$A_N$  = total area of all NDO's in the enclosure, ft<sup>2</sup>.

$C_A$  = actual concentration of the dilution check gas, ppm propane.

$C_{Bi}$  = corrected average VOC concentration of background emissions at point i, ppm propane.

$C_B$  = average background concentration, ppm propane.

$C_{DH}$  = average measured concentration for the drift check calibration gas, ppm propane.

$C_{D0}$  = average system drift check concentration for zero concentration gas, ppm propane.

$C_H$  = actual concentration of the drift check calibration gas, ppm propane.

$C_i$  = uncorrected average background VOC concentration measured at point i, ppm propane.

$C_j$  = uncorrected average VOC concentration measured at



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point j, ppm propane.

$C_M$  = measured concentration of the dilution check gas, ppm propane.

DF = dilution factor.

G = total VOC content of captured emissions, kg.

$K_1 = 1.830 \times 10^{-6} \text{ kg}/(\text{m}^3\text{-ppm})$ .

n = number of measurement points.

$Q_{Gj}$  = average effluent volumetric flow rate corrected to standard conditions at captured emissions point j,  $\text{m}^3/\text{min}$ .

$T_C$  = total duration of capture efficiency sampling run, min.

## 7. CALCULATIONS

## 7.1 Total VOC Captured Emissions.

$$G = \sum_{j=1}^n C_{Gj} Q_{Gj} T_C K_1 \quad \text{Eq. 1}$$

## 7.2 VOC Concentration of the Captured Emissions at Point j.

$$C_{Gj} = DF (C_j - C_{D0}) \frac{C_B}{C_{DH} - C_{D0}} \quad \text{Eq. 2}$$

## 7.3 Dilution Factor.

$$D_F = \frac{C_A - C_M}{C_M} \quad \text{Eq. 3}$$

## 7.4 Background VOC Concentration at Point i.

$$C_{Bi} = (C_i - C_{D0}) \frac{C_B}{C_{DH} - C_{D0}} \quad \text{Eq. 4}$$

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## 7.5 Average Background Concentration.

$$C_B = \frac{\sum_{i=1}^n C_{Bj} A_i}{n A_N} \quad \text{Eq. 5}$$

NOTE: If the concentration at each point is within 20 percent of the average concentration of all points, the terms " $A_i$ " and " $A_N$ " may be deleted from Equation 4.

Procedure F.2 - Fugitive VOC Emissions from Building Enclosures

## 1. INTRODUCTION

1.1 Applicability. This procedure is applicable for determining the fugitive volatile organic compounds (VOC) emissions from a building enclosure (BE). It is intended to be used as a segment in the development of liquid/gas or gas/gas protocols for determining VOC capture efficiency (CE) for surface coating and printing operations.

1.2 Principle. The total amount of fugitive VOC emissions ( $F_B$ ) from the BE is calculated as the sum of the products of the VOC content ( $C_{Fj}$ ) of each fugitive emissions point, its flow rate ( $Q_{Fj}$ ), and time ( $T_F$ ).

1.3 Measurement Uncertainty. The measurement uncertainties are estimated for each fugitive emissions point as follows:  $Q_{Fj} = \pm 5.0$  percent and  $C_{Fj} = \pm 5.0$  percent. Based on these numbers, the probable uncertainty for  $F_B$  is estimated at about  $\pm 11.2$  percent.

1.4 Sampling Requirements. A capture efficiency test shall consist of at least three sampling runs. The sampling time for each run should be at least 8 hours, unless otherwise approved.

1.5 Notes. Because this procedure is often applied in highly explosive areas, caution and care should be exercised in choosing appropriate equipment and installing and using the equipment. Mention of trade names or company products does not constitute endorsement. All gas concentrations (percent, ppm) are by volume, unless otherwise noted.

## 2. APPARATUS AND REAGENTS



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2.1 Gas VOC Concentration. A schematic of the measurement system is shown in Figure 1. The main components are described below:

2.1.1 Sample Probe. Stainless steel, or equivalent. The probe shall be heated to prevent VOC condensation.

2.1.2 Calibration Valve Assembly. Three-way valve assembly at the outlet of sample probe to direct the zero and calibration gases to the analyzer. Other methods, such as quick-connect lines, to route calibration gases to the outlet of the sample probe are acceptable.

2.1.3 Sample Line. Stainless steel or Teflon tubing to transport the sample gas to the analyzer. The sample line must be heated to prevent condensation.

2.1.4 Sample Pump. A leak-free pump, to pull the sample gas through the system at a flow rate sufficient to minimize the response time of the measurement system. The components of the pump that contact the gas stream shall be constructed of stainless steel or Teflon. The sample pump must be heated to prevent condensation.

2.1.5 Sample Flow Rate Control. A sample flow rate control valve and rotameter, or equivalent, to maintain a constant sampling rate within 10 percent. The flow rate control valve and rotameter must be heated to prevent condensation. A control valve may also be located on the sample pump bypass loop to assist in controlling the sample pressure and flow rate.

2.1.6 Sample Gas Manifold. Capable of diverting a portion of the sample gas stream to the flame ionization analyzer (FIA), and the remainder to the bypass discharge vent. The manifold components shall be constructed of stainless steel or Teflon. If emissions are to be measured at multiple locations, the measurement system shall be designed to use separate sampling probes, lines, and pumps for each measurement location and a common sample gas manifold and FIA. The sample gas manifold must be heated to prevent condensation.

2.1.7 Organic Concentration Analyzer. An FIA with a span value of 1.5 times the expected concentration as propane; however, other span values may be used if it can be demonstrated that they would provide more accurate measurements. The system shall be

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capable of meeting or exceeding the following specifications:

2.1.7.1 Zero Drift. Less than  $\pm 3.0$  percent of the span value.

2.1.7.2 Calibration Drift. Less than  $\pm 3.0$  percent of the span value.

2.1.7.3 Calibration Error. Less than  $\pm 5.0$  percent of the calibration gas value.

2.1.7.4 Response Time. Less than 30 seconds.

2.1.8 Integrator/Data Acquisition System. An analog or digital device or computerized data acquisition system used to integrate the FIA response or compute the average response and record measurement data. The minimum data sampling frequency for computing average or integrated values is one measurement value every 5 seconds. The device shall be capable of recording average values at least once per minute.

2.1.9 Calibration and Other Gases. Gases used for calibration, fuel, and combustion air (if required) are contained in compressed gas cylinders. All calibration gases shall be traceable to NIST standards and shall be certified by the manufacturer to  $\pm 1$  percent of the tag value. Additionally, the manufacturer of the cylinder should provide a recommended shelf life for each calibration gas cylinder over which the concentration does not change more than  $\pm 2$  percent from the certified value. For calibration gas values not generally available, alternative methods for preparing calibration gas mixtures, such as dilution systems, may be used with prior approval.

2.1.9.1 Fuel. A 40 percent  $H_2/60$  percent He or 40 percent  $H_2/60$  percent  $N_2$  gas mixture is recommended to avoid an oxygen synergism effect that reportedly occurs when oxygen concentration varies significantly from a mean value.

2.1.9.2 Carrier Gas. High purity air with less than 1 ppm of organic material (propane or carbon equivalent) or less than 0.1 percent of the span value, whichever is greater.

2.1.9.3 FIA Linearity Calibration Gases. Low-, mid-, and high-range gas mixture standards with nominal propane concentrations of 20-30, 45-55, and 70-80 percent of the span



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value in air, respectively. Other calibration values and other span values may be used if it can be shown that more accurate measurements would be achieved.

2.1.10 Particulate Filter. An in-stack or an out-of-stack glass fiber filter is recommended if exhaust gas particulate loading is significant. An out-of-stack filter must be heated to prevent any condensation unless it can be demonstrated that no condensation occurs.

## 2.2 Fugitive Emissions Volumetric Flow Rate.

2.2.1 Flow Direction Indicators. Any means of indicating inward or outward flow, such as light plastic film or paper streamers, smoke tubes, filaments, and sensory perception.

2.2.2 Method 2 or 2A Apparatus. For determining volumetric flow rate. Anemometers or similar devices calibrated according to the manufacturer's instructions may be used when low velocities are present. Vane anemometers (Young-maximum response propeller), specialized pitots with electronic manometers (e.g., Shortridge Instruments Inc., Airdata Multimeter 860) are commercially available with measurement thresholds of 15 and 8 fpm (50 and 25 fpm), respectively.

2.2.3 Method 3 Apparatus and Reagents. For determining molecular weight of the gas stream. An estimate of the molecular weight of the gas stream may be used if it can be justified.

2.2.4 Method 4 Apparatus and Reagents. For determining moisture content, if necessary.

## 3. DETERMINATION OF VOLUMETRIC FLOW RATE OF FUGITIVE EMISSIONS

3.1 Preliminary Determinations. The purpose of this exercise is to determine which exhaust points should be measured for volumetric flow rates and VOC concentrations.

3.1.1 Forced Draft Openings. Identify all forced draft openings. Determine the volumetric flow rate according to Method 2.

3.1.2 NDO's Exhaust Points. The NDO's in the roof of a facility are considered to be exhaust points. Determine volumetric flow rate from these NDO's. Divide the cross-sectional area according to Method 1 using 12 equal areas. Use the appropriate velocity

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measurement devices, e.g., propeller anemometers.

## 3.1.3 Other NDO's.

3.1.3.1 This step is optional. Determine the exhaust flow rate, including that of the control device, from the enclosure and the intake air flow rate. If the exhaust flow rate divided by the intake air flow rate is greater than 1.1, then all other NDO's are not considered to be significant exhaust points.

3.1.3.2 If the option above is not taken, identify all other NDO's and other potential points through which fugitive emissions may escape the enclosure.

Then use the following criteria to determine whether flow rates and VOC concentrations need to be measured:

3.1.3.2.1 Using the appropriate flow direction indicator, determine the flow direction. An NDO with zero or inward flow is not an exhaust point.

3.1.3.2.2 Measure the outward volumetric flow rate from the remainder of the NDO's. If the collective flow rate is 2 percent, or less, of the flow rate from Sections 3.1.1 and 3.1.2, then these NDO's, except those within two equivalent diameters (based on NDO opening) from VOC sources, may be considered to be non-exhaust points.

3.1.3.2.3 If the percentage calculated in Section 3.1.3.2.2 is greater than 2 percent, those NDO's (except those within two equivalent diameters from VOC sources) whose volumetric flow rate total 2 percent of the flow rate from Sections 3.1.1 and 3.1.2 may be considered as non-exhaust points. All remaining NDO's shall be measured for volumetric flow rate and VOC concentrations during the CE test.

3.1.3.2.4 The tester may choose to measure VOC concentrations at the forced exhaust points and the NDO's. If the total VOC emissions from the NDO's are less than 2 percent of the emissions from the forced draft and roof NDO's, then these NDO's may be eliminated from further consideration.

## 3.2 Determination of Flow Rates.

3.2.1 Measure the volumetric flow rate at all locations identified as exhaust points in Section 3.1. Divide each exhaust opening into 9 equal areas for rectangular openings and 8 for



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circular openings.

3.2.2 Measure the velocity at each site at least once every hour during each sampling run using Method 2 or 2A, if applicable, or using the low velocity instruments in Section 2.2.2.

#### 4. DETERMINATION OF VOC CONTENT OF FUGITIVE EMISSIONS

4.1 Analysis Duration. Measure the VOC responses at each fugitive emission point during the entire test run or, if applicable, while the process is operating. If there are multiple emissions locations, design a sampling system to allow a single FIA to be used to determine the VOC responses at all sampling locations.

#### 4.2 Gas VOC Concentration.

4.2.1 Assemble the sample train as shown in Figure 1. Calibrate the FIA and conduct a system check according to the procedures in Sections 5.1 and 5.3, respectively.

4.2.2 Install the sample probe so that the probe is centrally located in the stack, pipe, or duct, and is sealed tightly at the stack port connection.

4.2.3 Inject zero gas at the calibration valve assembly. Allow the measurement system response to reach zero. Measure the system response time as the time required for the system to reach the effluent concentration after the calibration valve has been returned to the effluent sampling position.

4.2.4 Conduct a system check before and a system drift check after each sampling run according to the procedures in Sections 5.2 and 5.3. If the drift check following a run indicates unacceptable performance, the run is not valid. The tester may elect to perform drift checks during the run not to exceed one drift check per hour.

4.2.5 Verify that the sample lines, filter, and pump temperatures are 120  $\pm$  5°C.

4.2.6 Begin sampling at the start of the test period and continue to sample during the entire run. Record the starting and ending times and any required process information as appropriate. If multiple emission locations are sampled using a

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single FIA, sample at each location for the same amount of time (e.g., 2 minutes) and continue to switch from one location to another for the entire test run. Be sure that total sampling time at each location is the same at the end of the test run. Collect at least 4 separate measurements from each sample point during each hour of testing. Disregard the response measurements at each sampling location until two times the response time of the measurement system has elapsed. Continue sampling for at least 1 minute and record the concentration measurements.

4.3 Alternative Procedure The direct interface sampling and analysis procedure described in Section 7.2 of Method 18 may be used to determine the gas VOC concentration. The system must be designed to collect and analyze at least one sample every 10 minutes.

#### 5. CALIBRATION AND QUALITY ASSURANCE

5.1 FIA Calibration and Linearity Check. Make necessary adjustments to the air and fuel supplies for the FIA and ignite the burner. Allow the FIA to warm up for the period recommended by the manufacturer. Inject a calibration gas into the measurement system and adjust the back-pressure regulator to the value required to achieve the flow rates specified by the manufacturer. Inject the zero- and the high-range calibration gases and adjust the analyzer calibration to provide the proper responses. Inject the low- and mid-range gases and record the responses of the measurement system. The calibration and linearity of the system are acceptable if the responses for all four gases are within 5 percent of the respective gas values. If the performance of the system is not acceptable, repair or adjust the system and repeat the linearity check. Conduct a calibration and linearity check after assembling the analysis system and after a major change is made to the system.

5.2 Systems Drift Checks. Select the calibration gas that most closely approximates the concentration of the captured emissions for conducting the drift checks. Introduce the zero and calibration gas at the calibration valve assembly and verify that the appropriate gas flow rate and pressure are present at the FIA. Record the measurement system responses to the zero and calibration gases. The performance of the system is acceptable if the difference between the drift check measurement and the value obtained in Section 5.1 is less than 3 percent of the span value. Conduct a system drift check at the end of each run.



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5.3 System Check. Inject the high range calibration gas at the inlet of the sampling probe and record the response. The performance of the system is acceptable if the measurement system response is within 5 percent of the value obtained in Section 5.1 for the high range calibration gas. Conduct a system check before each test run.

5.4 Analysis Audit. Immediately before each test analyze an audit cylinder as described in Section 5.2. The analysis audit must agree with the audit cylinder concentration within 10 percent.

## 6. NOMENCLATURE

$C_{DH}$  = average measured concentration for the drift check calibration gas, ppm propane.

$C_{D0}$  = average system drift check concentration for zero concentration gas, ppm propane.

$C_{Fj}$  = corrected average VOC concentration of fugitive emissions at point j, ppm propane.

$C_H$  = actual concentration of the drift check calibration gas, ppm propane.

$C_j$  = uncorrected average VOC concentration measured at point j, ppm propane.

$F_B$  = total VOC content of fugitive emissions from the building, kg.

$K_1 = 1.830 \times 10^{-6} \text{ kg}/(\text{m}^3\text{-ppm})$ .

$n$  = number of measurement points.

$Q_{Fj}$  = average effluent volumetric flow rate corrected to standard conditions at fugitive emissions point j,  $\text{m}^3/\text{min}$ .

$T_F$  = total duration of capture efficiency sampling run, min.

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## 7. CALCULATIONS

## 7.1 Total VOC Fugitive Emissions From the Building.

$$F_B = \sum_{j=1}^n C_{Fj} Q_{Fj} T_F K_1 \quad \text{Eq. 1}$$

## 7.2 VOC Concentration of the Fugitive Emissions at Point j.

$$C_{Fj} = (C_j - C_{D0}) \frac{C_H}{C_{DH} - C_{D0}} \quad \text{Eq. 2}$$

Procedure F.1 - Fugitive VOC Emissions from Temporary Enclosures

## 1. INTRODUCTION

1.1 Applicability. This procedure is applicable for determining the fugitive volatile organic compounds (VOC) emissions from a temporary total enclosure (TTE). It is intended to be used as a segment in the development of liquid/gas or gas/gas protocols for determining VOC capture efficiency (CE) for surface coating and printing operations.

1.2 Principle. The amount of fugitive VOC emissions ( $F$ ) from the TTE is calculated as the sum of the products of the VOC content ( $C_{Fj}$ ), the flow rate ( $Q_{Fj}$ ), and the sampling time ( $T_F$ ) from each fugitive emissions point.

1.3 Estimated Measurement Uncertainty. The measurement uncertainties are estimated for each fugitive emission point as follows:  $Q_{Fj} = \pm 5.5$  percent and  $CF_j = \pm 5.0$  percent. Based on these numbers, the probable uncertainty for  $F$  is estimated at about  $\pm 7.4$  percent.

1.4 Sampling Requirements. A capture efficiency test shall consist of at least three sampling runs. The sampling time for each run should be at least 8 hours, unless otherwise approved.

1.5 Notes. Because this procedure is often applied in highly explosive areas, caution and care should be exercised in choosing appropriate equipment and installing and using the equipment. Mention of trade names or company products does not constitute



endorsement. All gas concentrations (percent, ppm) are by volume, unless otherwise noted.

## 2. APPARATUS AND REAGENTS

2.1 Gas VOC Concentration. A schematic of the measurement system is shown in Figure 1. The main components are described below:

2.1.1 Sample Probe. Stainless steel, or equivalent. The probe shall be heated to prevent VOC condensation.

2.1.2 Calibration Valve Assembly. Three-way valve assembly at the outlet of sample probe to direct the zero and calibration gases to the analyzer. Other methods, such as quick-connect lines, to route calibration gases to the outlet of the sample probe are acceptable.

2.1.3 Sample Line. Stainless steel or Teflon tubing to transport the sample gas to the analyzer. The sample line must be heated to prevent condensation.

2.1.4 Sample Pump. A leak-free pump, to pull the sample gas through the system at a flow rate sufficient to minimize the response time of the measurement system. The components of the pump that contact the gas stream shall be constructed of stainless steel or Teflon. The sample pump must be heated to prevent condensation.

2.1.5 Sample Flow Rate Control. A sample flow rate control valve and rotameter, or equivalent, to maintain a constant sampling rate within 10 percent. The flow control valve and rotameter must be heated to prevent condensation. A control valve may also be located on the sample pump bypass loop to assist in controlling the sample pressure and flow rate.

2.1.6 Sample Gas Manifold. Capable of diverting a portion of the sample gas stream to the flame ionization analyzer (FIA), and the remainder to the bypass discharge vent. The manifold components shall be constructed of stainless steel or Teflon. If emissions are to be measured at multiple locations, the measurement system shall be designed to use separate sampling probes, lines, and pumps for each measurement location and a common sample gas manifold and FIA. The sample gas manifold and connecting lines to the FIA must be heated to prevent condensation.

2.1.7 Organic Concentration Analyzer. An FIA with a span value of 1.5 times the expected concentration as propane; however, other span values may be used if it can be demonstrated that they would provide more accurate measurements. The system shall be capable of meeting or exceeding the following specifications:

2.1.7.1 Zero Drift. Less than  $\pm 3.0$  percent of the span value.

2.1.7.2 Calibration Drift. Less than  $\pm 3.0$  percent of the span value.

2.1.7.3 Calibration Error. Less than  $\pm 5.0$  percent of the calibration gas value.

2.1.7.4 Response Time. Less than 30 seconds.

2.1.8 Integrator/Data Acquisition System. An analog or digital device or computerized data acquisition system used to integrate the FIA response or compute the average response and record measurement data. The minimum data sampling frequency for computing average or integrated values is one measurement value every 5 seconds. The device shall be capable of recording average values at least once per minute.

2.1.9 Calibration and Other Gases. Gases used for calibration, fuel, and combustion air (if required) are contained in compressed gas cylinders. All calibration gases shall be traceable to NIST standards and shall be certified by the manufacturer to  $\pm 1$  percent of the tag value. Additionally, the manufacturer of the cylinder should provide a recommended shelf life for each calibration gas cylinder over which the concentration does not change more than  $\pm 2$  percent from the certified value. For calibration gas values notgenerally available, alternative methods for preparing calibration gas mixtures, such as dilution systems, may be used with prior approval.

2.1.9.1 Fuel. A 40 percent  $H_2/60$  percent He or 40 percent  $H_2/60$  percent  $N_2$  gas mixture is recommended to avoid an oxygen synergism effect that reportedly occurs when oxygen concentration varies significantly from a mean value.

2.1.9.2 Carrier Gas. High purity air with less than 1 ppm of organic material (as propane or carbon equivalent) or less than



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0.1 percent of the span value, whichever is greater.

2.1.9.3 FIA Linearity Calibration Gases. Low-, mid-, and high-range gas mixture standards with nominal propane concentrations of 20-30, 45-55, and 70-80 percent of the span value in air, respectively. Other calibration values and other span values may be used if it can be shown that more accurate measurements would be achieved.

2.1.10 Particulate Filter. An in-stack or an out-of-stack glass fiber filter is recommended if exhaust gas particulate loading is significant. An out-of-stack filter must be heated to prevent any condensation unless it can be demonstrated that no condensation occurs.

## 2.2 Fugitive Emissions Volumetric Flow Rate.

2.2.1 Method 2 or 2A Apparatus. For determining volumetric flow rate.

2.2.2 Method 3 Apparatus and Reagents. For determining molecular weight of the gas stream. An estimate of the molecular weight of the gas stream may be used if it can be justified.

2.2.3 Method 4 Apparatus and Reagents. For determining moisture content, if necessary.

2.3 Temporary Total Enclosure. The criteria for designing a TTE are discussed in Procedure T.

## 3. DETERMINATION OF VOLUMETRIC FLOW RATE OF FUGITIVE EMISSIONS

3.1 Locate all points where emissions are exhausted from the TTE. Using Method 1, determine the sampling points. Be sure to check each site for cyclonic or swirling flow.

3.2 Measure the velocity at each sampling site at least once every hour during each sampling run using Method 2 or 2A.

## 4. DETERMINATION OF VOC CONTENT OF FUGITIVE EMISSIONS

4.1 Analysis Duration. Measure the VOC responses at each fugitive emission point during the entire test run or, if applicable, while the process is operating. If there are multiple emission locations, design a sampling system to allow a single FIA to be used to determine the VOC responses at all

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sampling locations.

## 4.2 Gas VOC Concentration.

4.2.1 Assemble the sample train as shown in Figure 1. Calibrate the FIA and conduct a system check according to the procedures in Sections 5.1 and 5.3, respectively.

4.2.2 Install the sample probe so that the probe is centrally located in the stack, pipe, or duct, and is sealed tightly at the stack port connection.

4.2.3 Inject zero gas at the calibration valve assembly. Allow the measurement system response to reach zero. Measure the system response time as the time required for the system to reach the effluent concentration after the calibration valve has been returned to the effluent sampling position.

4.2.4 Conduct a system check before and a system drift check after each sampling run according to the procedures in Sections 5.2 and 5.3. If the drift check following a run indicates unacceptable performance, the run is not valid. The tester may elect to perform system drift checks during the run not to exceed one drift check per hour.

4.2.5 Verify that the sample lines, filter, and pump temperatures are  $120 \pm 5^\circ\text{C}$ .

4.2.6 Begin sampling at the start of the test period and continue to sample during the entire run. Record the starting and ending times and any required process information as appropriate. If multiple emission locations are sampled using a single FIA, sample at each location for the same amount of time (e.g., 2 minutes) and continue to switch from one location to another for the entire test run. Be sure that total sampling time at each location is the same at the end of the test run. Collect at least 4 separate measurements from each sample point during each hour of testing. Disregard the response measurements at each sampling location until two times the response time of the measurement system has elapsed. Continue sampling for at least 1 minute and record the concentration measurements.

## 4.3 Background Concentration.

4.3.1 Determination of VOC Background Concentration.



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4.3.1.1 Locate all NDO's of the TTE. A sampling point shall be centrally located outside of the TTE at 4 equivalent diameters from each NDO, if possible. If there are more than 6 NDO's, choose 6 sampling points evenly spaced among the NDO's.

4.3.1.2 Assemble the sample train as shown in Figure 2. Calibrate the FIA and conduct a system check according to the procedures in Sections 5.1 and 5.3.

4.3.1.3 Position the probe at the sampling location.

4.3.1.4 Determine the response time, conduct the system check and sample according to the procedures described in Sections 4.2.3 to 4.2.6.

4.4 Alternative Procedure. The direct interface sampling and analysis procedure described in Section 7.2 of Method 18 may be used to determine the gas VOC concentration. The system must be designed to collect and analyze at least one sample every 10 minutes.

## 5. CALIBRATION AND QUALITY ASSURANCE

5.1 FIA Calibration and Linearity Check. Make necessary adjustments to the air and fuel supplies for the FIA and ignite the burner. Allow the FIA to warm up for the period recommended by the manufacturer. Inject a calibration gas into the measurement system and adjust the back-pressure regulator to the value required to achieve the flow rates specified by the manufacturer. Inject the zero- and the high-range calibration gases and adjust the analyzer calibration to provide the proper responses. Inject the low- and mid-range gases and record the responses of the measurement system. The calibration and linearity of the system are acceptable if the responses for all four gases are within 5 percent of the respective gas values. If the performance of the system is not acceptable, repair or adjust the system and repeat the linearity check. Conduct a calibration and linearity check after assembling the analysis system and after a major change is made to the system.

5.2 Systems Drift Checks. Select the calibration gas concentration that most closely approximates that of the fugitive gas emissions to conduct the drift checks. Introduce the zero and calibration gas at the calibration valve assembly and verify that the appropriate gas flow rate and pressure are present at the FIA. Record the measurement system responses to the zero and

calibration gases. The performance of the system is acceptable if the difference between the drift check measurement and the value obtained in Section 5.1 is less than 3 percent of the span value. Conduct a system drift check at the end of each run.

5.3 System Check. Inject the high range calibration gas at the inlet of the sampling probe and record the response. The performance of the system is acceptable if the measurement system response is within 5 percent of the value obtained in Section 5.1 for the high range calibration gas. Conduct a system check before each test run.

5.4 Analysis Audit. Immediately before each test analyze an audit cylinder as described in Section 5.2. The analysis audit must agree with the audit cylinder concentration within 10 percent.

## 6. NOMENCLATURE

$A_i$  = area of NDO i,  $\text{ft}^2$ .

$A_N$  = total area of all NDO's in the enclosure,  $\text{ft}^2$ .

$C_{Bi}$  = corrected average VOC concentration of background emissions at point i, ppm propane.

$C_B$  = average background concentration, ppm propane.

$C_{DH}$  = average measured concentration for the drift check calibration gas, ppm propane.

$C_{D0}$  = average system drift check concentration for zero concentration gas, ppm propane.

$C_{Fj}$  = corrected average VOC concentration of fugitive emissions at point j, ppm propane.

$C_H$  = actual concentration of the drift check calibration gas, ppm propane.

$C_i$  = uncorrected average background VOC concentration at point i, ppm propane.

$C_j$  = uncorrected average VOC concentration measured at point j, ppm propane.



F = total VOC content of fugitive emissions, kg.

$$K_1 = 1.830 \times 10^{-6} \text{ kg}/(\text{m}^3\text{-ppm}).$$

n = number of measurement points.

$Q_{Fj}$  = average effluent volumetric flow rate corrected to standard conditions at fugitive emissions point j,  $\text{m}^3/\text{min}.$

$T_F$  = total duration of fugitive emissions sampling run, min.

## 7. CALCULATIONS

### 7.1 Total VOC Fugitive Emissions.

$$F = \sum_{j=1}^n (C_{Fj} - C_B) Q_{Fj} T_F K_1 \quad \text{Eq. 1}$$

### 7.2 VOC Concentration of the Fugitive Emissions at Point j.

$$C_{Fj} = (C_j - C_{D0}) \frac{C_B - C_{D0}}{C_{DH} - C_{D0}} \quad \text{Eq. 2}$$

### 7.3 Background VOC Concentration at Point i.

$$C_{Bi} = (C_i - C_{D0}) \frac{C_B - C_{D0}}{C_{DH} - C_{D0}} \quad \text{Eq. 3}$$

### 7.4 Average Background Concentration.

$$C_B = \frac{\sum_{i=1}^n C_{Bi} A_i}{n A_N} \quad \text{Eq. 5}$$

NOTE: If the concentration at each point is within 20 percent of the average concentration of all points, the terms "A<sub>i</sub>" and "A<sub>N</sub>" may be deleted from Equation 4.

## Procedure L - VOC Input

### 1. INTRODUCTION

1.1 Applicability. This procedure is applicable for determining the input of volatile organic compounds (VOC). It is intended to be used as a segment in the development of liquid/gas protocols for determining VOC capture efficiency (CE) for surface coating and printing operations.

1.2 Principle. The amount of VOC introduced to the process (L) is the sum of the products of the weight (W) of each VOC containing liquid (ink, paint, solvent, etc.) used and its VOC content (V). A sample of each VOC containing liquid is analyzed with a flame ionization analyzer (FIA) to determine V.

1.3 Estimated Measurement Uncertainty. The measurement uncertainties are estimated for each VOC containing liquid as follows:  $W = \pm 2.0$  percent and  $V = \pm 12.0$  percent. Based on these numbers, the probable uncertainty for L is estimated at about  $\pm 12.2$  percent for each VOC containing liquid.

1.4 Sampling Requirements. A capture efficiency test shall consist of at least three sampling runs. The sampling time for each run should be at least 8 hours, unless otherwise approved.

1.5 Notes. Because this procedure is often applied in highly explosive areas, caution and care should be exercised in choosing appropriate equipment and installing and using the equipment. Mention of trade names or company products does not constitute endorsement. All gas concentrations (percent, ppm) are by volume, unless otherwise noted.

### 2. APPARATUS AND REAGENTS

#### 2.1 Liquid Weight.

2.1.1 Balances/Digital Scales. To weigh drums of VOC containing liquids to within 0.2 lb.

2.1.2 Volume Measurement Apparatus (Alternative). Volume meters, flow meters, density measurement equipment, etc., as needed to achieve same accuracy as direct weight measurements.

2.2 VOC Content (Flame Ionization Analyzer Technique). The liquid sample analysis system is shown in Figures 1 and 2. The



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following equipment is required:

2.2.1 Sample Collection Can. An appropriately sized metal can to be used to collect VOC containing materials. The can must be constructed in such a way that it can be grounded to the coating container.

2.2.2 Needle Valves. To control gas flow.

2.2.3 Regulators. For carrier gas and calibration gas cylinders.

2.2.4 Tubing. Teflon or stainless steel tubing with diameters and lengths determined by connection requirements of equipment. The tubing between the sample oven outlet and the FIA shall be heated to maintain a temperature of  $120 \pm 5^\circ\text{C}$ .

2.2.5 Atmospheric Vent. A tee and 0- to 0.5-liter/min rotameter placed in the sampling line between the carrier gas cylinder and the VOC sample vessel to release the excess carrier gas. A toggle valve placed between the tee and the rotameter facilitates leak tests of the analysis system.

2.2.6 Thermometer. Capable of measuring the temperature of the hot water bath to within  $1^\circ\text{C}$ .

2.2.7 Sample Oven. Heated enclosure, containing calibration gas coil heaters, critical orifice, aspirator, and other liquid sample analysis components, capable of maintaining a temperature of  $120 \pm 5^\circ\text{C}$ .

2.2.8 Gas Coil Heaters. Sufficient lengths of stainless steel or Teflon tubing to allow zero and calibration gases to be heated to the sample oven temperature before entering the critical orifice or aspirator.

2.2.9 Water Bath. Capable of heating and maintaining a sample vessel temperature of  $100 \pm 5^\circ\text{C}$ .

2.2.10 Analytical Balance. To measure  $\pm 0.001$  g.

2.2.11 Disposable Syringes. 2-cc or 5-cc.

2.2.12 Sample Vessel. Glass, 40-ml septum vial. A separate vessel is needed for each sample.

2.2.13 Rubber Stopper. Two-hole stopper to accommodate 3.2-mm (1/8-in.) Teflon tubing, appropriately sized to fit the opening of the sample vessel. The rubber stopper should be wrapped in Teflon tape to provide a tighter seal and to prevent any reaction of the sample with the rubber stopper. Alternatively, any leak-free closure fabricated of non-reactive materials and accommodating the necessary tubing fittings may be used.

2.2.14 Critical Orifices. Calibrated critical orifices capable of providing constant flow rates from 50 to 250 ml/min at known pressure drops. Sapphire orifice assemblies (available from O'Keefe Controls Company) and glass capillary tubing have been found to be adequate for this application.

2.2.15 Vacuum Gauge. 0- to 760-mm (0- to 30-in.) Hg U-Tube manometer or vacuum gauge.

2.2.16 Pressure Gauge. Bourdon gauge capable of measuring the maximum air pressure at the aspirator inlet (e.g., 100 psig).

2.2.17 Aspirator. A device capable of generating sufficient vacuum at the sample vessel to create critical flow through the calibrated orifice when sufficient air pressure is present at the aspirator inlet. The aspirator must also provide sufficient sample pressure to operate the FIA. The sample is also mixed with the dilution gas within the aspirator.

2.2.18 Soap Bubble Meter. Of an appropriate size to calibrate the critical orifices in the system.

2.2.19 Organic Concentration Analyzer. An FIA with a span value of 1.5 times the expected concentration as propane; however other span values may be used if it can be demonstrated that they would provide more accurate measurements. The system shall be capable of meeting or exceeding the following specifications:

2.2.19.1 Zero Drift. Less than  $\pm 3.0$  percent of the span value.

2.2.19.2 Calibration Drift. Less than  $\pm 3.0$  percent of span value.

2.2.19.3 Calibration Error. Less than  $\pm 5.0$  percent of the calibration gas value.

2.2.20 Integrator/Data Acquisition System. An analog or digital device or computerized data acquisition system used to integrate



the FIA response or compute the average response and record measurement data. The minimum data sampling frequency for computing average or integrated values is one measurement value every 5 seconds. The device shall be capable of recording average values at least once per minute.

2.2.21 Chart Recorder (Optional). A chart recorder or similar device is recommended to provide a continuous analog display of the measurement results during the liquid sample analysis.

2.2.22 Calibration and Other Gases. For calibration, fuel, and combustion air (if required) contained in compressed gas cylinders. All calibration gases shall be traceable to NIST standards and shall be certified by the manufacturer to  $\pm 1$  percent of the tag value. Additionally, the manufacturer of the cylinder should provide a recommended shelf life for each calibration gas cylinder over which the concentration does not change more than  $\pm 2$  percent from the certified value. For calibration gas values not generally available, alternative methods for preparing calibration gas mixtures, such as dilution systems, may be used with prior approval.

2.2.22.1 Fuel. A 40 percent H<sub>2</sub>/60 percent He or 40 percent H<sub>2</sub>/60 percent N<sub>2</sub> gas mixture is recommended to avoid an oxygen synergism effect that reportedly occurs when oxygen concentration varies significantly from a mean value.

2.2.22.2 Carrier Gas. High purity air with less than 1 ppm of organic material (as propane) or less than 0.1 percent of the span value, whichever is greater.

2.2.22.3 FIA Linearity Calibration Gases. Low-, mid-, and high-range gas mixture standards with nominal propane concentrations of 20-30, 45-55, and 70-80 percent of the span value in air, respectively. Other calibration values and other span values may be used if it can be shown that more accurate measurements would be achieved.

2.2.22.4 System Calibration Gas. Gas mixture standard containing propane in air, approximating the undiluted VOC concentration expected for the liquid samples.

### 3. DETERMINATION OF LIQUID INPUT WEIGHT

3.1 Weight Difference. Determine the amount of material

introduced to the process as the weight difference of the feed material before and after each sampling run. In determining the total VOC containing liquid usage, account for: (a) the initial (beginning) VOC containing liquid mixture; (b) any solvent added during the test run; (c) any coating added during the test run; and (d) any residual VOC containing liquid mixture remaining at the end of the sample run.

3.1.1 Identify all points where VOC containing liquids are introduced to the process. To obtain an accurate measurement of VOC containing liquids, start with an empty fountain (if applicable). After completing the run, drain the liquid in the fountain back into the liquid drum (if possible), and weigh the drum again. Weigh the VOC containing liquids to  $\pm 0.5$  percent of the total weight (full) or  $\pm 0.1$  percent of the total weight of VOC containing liquid used during the sample run, whichever is less. If the residual liquid cannot be returned to the drum, drain the fountain into a preweighed empty drum to determine the final weight of the liquid.

3.1.2 If it is not possible to measure a single representative mixture, then weigh the various components separately (e.g., if solvent is added during the sampling run, weigh the solvent before it is added to the mixture). If a fresh drum of VOC containing liquid is needed during the run, then weigh both the empty drum and fresh drum.

3.2 Volume Measurement (Alternative). If direct weight measurements are not feasible, the tester may use volume meters and flow rate meters (and density measurements) to determine the weight of liquids used if it can be demonstrated that the technique produces results equivalent to the direct weight measurements. If a single representative mixture cannot be measured, measure the components separately.

### 4. DETERMINATION OF VOC CONTENT IN INPUT LIQUIDS

4.1 Collection of Liquid Samples.

4.1.1 Collect a 100-ml or larger sample of the VOC containing liquid mixture at each application location at the beginning and end of each test run. A separate sample should be taken of each VOC containing liquid added to the application mixture during the test run. If a fresh drum is needed during the sampling run,



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then obtain a sample from the fresh drum.

4.1.2 When collecting the sample, ground the sample container to the coating drum. Fill the sample container as close to the rim as possible to minimize the amount of headspace.

4.1.3 After the sample is collected, seal the container so the sample cannot leak out or evaporate.

4.1.4 Label the container to identify clearly the contents.

4.2 Liquid Sample VOC Content.

4.2.1 Assemble the liquid VOC content analysis system as shown in Figure 1.

4.2.2 Permanently identify all of the critical orifices that may be used. Calibrate each critical orifice under the expected operating conditions (i.e., sample vacuum and temperature) against a volume meter as described in Section 5.3.

4.2.3 Label and tare the sample vessels (including the stoppers and caps) and the syringes.

4.2.4 Install an empty sample vessel and perform a leak test of the system. Close the carrier gas valve and atmospheric vent and evacuate the sample vessel to 250 mm (10 in.) Hg absolute or less using the aspirator. Close the toggle valve at the inlet to the aspirator and observe the vacuum for at least one minute. If there is any change in the sample pressure, release the vacuum, adjust or repair the apparatus as necessary and repeat the leak test.

4.2.5 Perform the analyzer calibration and linearity checks according to the procedure in Section 5.1. Record the responses to each of the calibration gases and the back-pressure setting of the FIA.

4.2.6 Establish the appropriate dilution ratio by adjusting the aspirator air supply or substituting critical orifices. Operate the aspirator at a vacuum of at least 25 mm (1 in.) Hg greater than the vacuum necessary to achieve critical flow. Select the dilution ratio so that the maximum response of the FIA to the sample does not exceed the high-range calibration gas.

4.2.7 Perform system calibration checks at two levels by

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introducing compressed gases at the inlet to the sample vessel while the aspirator and dilution devices are operating. Perform these checks using the carrier gas (zero concentration) and the system calibration gas. If the response to the carrier gas exceeds  $\pm 0.5$  percent of span, clean or repair the apparatus and repeat the check. Adjust the dilution ratio as necessary to achieve the correct response to the upscale check, but do not adjust the analyzer calibration. Record the identification of the orifice, aspirator air supply pressure, FIA back-pressure, and the responses of the FIA to the carrier and system calibration gases.

4.2.8 After completing the above checks, inject the system calibration gas for approximately 10 minutes. Time the exact duration of the gas injection using a stopwatch. Determine the area under the FIA response curve and calculate the system response factor based on the sample gas flow rate, gas concentration, and the duration of the injection as compared to the integrated response using Equations 2 and 3.

4.2.9 Verify that the sample oven and sample line temperatures are  $120 \pm 5^\circ\text{C}$  and that the water bath temperature is  $100 \pm 5^\circ\text{C}$ .

4.2.10 Fill a tared syringe with approximately 1 g of the VOC containing liquid and weigh it. Transfer the liquid to a tared sample vessel. Plug the sample vessel to minimize sample loss. Weigh the sample vessel containing the liquid to determine the amount of sample actually received. Also, as a quality control check, weigh the empty syringe to determine the amount of material delivered. The two coating sample weights should agree within  $\pm 0.02$  g. If not, repeat the procedure until an acceptable sample is obtained.

4.2.11 Connect the vessel to the analysis system. Adjust the aspirator supply pressure to the correct value. Open the valve on the carrier gas supply to the sample vessel and adjust it to provide a slight excess flow to the atmospheric vent. As soon as the initial response of the FIA begins to decrease, immerse the sample vessel in the water bath. (Applying heat to the sample vessel too soon may cause the FID response to exceed the calibrated range of the instrument, and thus invalidate the analysis.)

4.2.12 Continuously measure and record the response of the FIA until all of the volatile material has been evaporated from the



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sample and the instrument response has returned to the baseline (i.e., response less than 0.5 percent of the span value). Observe the aspirator supply pressure, FIA back-pressure, atmospheric vent, and other system operating parameters during the run; repeat the analysis procedure if any of these parameters deviate from the values established during the system calibration checks in Section 4.2.7. After each sample perform the drift check described in Section 5.2. If the drift check results are acceptable, calculate the VOC content of the sample using the equations in Section 7. Integrate the area under the FIA response curve, determine the average concentration response and the duration of sample analysis.

## 5. CALIBRATION AND QUALITY ASSURANCE

5.1 FIA Calibration and Linearity Check. Make necessary adjustments to the air and fuel supplies for the FIA and ignite the burner. Allow the FIA to warm up for the period recommended by the manufacturer. Inject a calibration gas into the measurement system and adjust the back-pressure regulator to the value required to achieve the flow rates specified by the manufacturer. Inject the zero- and the high-range calibration gases and adjust the analyzer calibration to provide the proper responses. Inject the low- and mid-range gases and record the responses of the measurement system. The calibration and linearity of the system are acceptable if the responses for all four gases are within 5 percent of the respective gas values. If the performance of the system is not acceptable, repair or adjust the system and repeat the linearity check. Conduct a calibration and linearity check after assembling the analysis system and after a major change is made to the system.

5.2 Systems Drift Checks. After each sample, repeat the system calibration checks in Section 4.2.7 before any adjustments to the FIA or measurement system are made. If the zero or calibration drift exceeds  $\pm 3$  percent of the span value, discard the result and repeat the analysis.

## 5.3 Critical Orifice Calibration.

5.3.1 Each critical orifice must be calibrated at the specific operating conditions that it will be used. Therefore, assemble all components of the liquid sample analysis system as shown in Figure 3. A stopwatch is also required.

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5.3.2 Turn on the sample oven, sample line, and water bath heaters and allow the system to reach the proper operating temperature. Adjust the aspirator to a vacuum of 380 mm (15 in.) Hg vacuum. Measure the time required for one soap bubble to move a known distance and record barometric pressure.

5.3.3 Repeat the calibration procedure at a vacuum of 406 mm (16 in.) Hg and at 25-mm (1-in.) Hg intervals until three consecutive determinations provide the same flow rate. Calculate the critical flow rate for the orifice in ml/min at standard conditions. Record the vacuum necessary to achieve critical flow.



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## 6. NOMENCLATURE

$A_L$  = area under the response curve of the liquid sample, area count.

$A_S$  = area under the response curve of the calibration gas, area count.

$C_S$  = actual concentration of system calibration gas, ppm propane.

$K = 1.830 \times 10^{-9}$  g/(ml-ppm).

$L$  = total VOC content of liquid input, kg.

$M_L$  = mass of liquid sample delivered to the sample vessel, g.

$q$  = flow rate through critical orifice, ml/min.

$RF$  = liquid analysis system response factor, g/area count.

$T_S$  = total gas injection time for system calibration gas during integrator calibration, min.

$V_{Fj}$  = final VOC fraction of VOC containing liquid j.

$V_{Ij}$  = initial VOC fraction of VOC containing liquid j.

$V_{Aj}$  = VOC fraction of VOC containing liquid j added during the run.

$V$  = VOC fraction of liquid sample.

$W_{Fj}$  = weight of VOC containing liquid j remaining at end of the run, kg.

$W_{Ij}$  = weight of VOC containing liquid j at beginning of the run, kg.

$W_{Aj}$  = weight of VOC containing liquid j added during the run, kg.

## 7. CALCULATIONS

## 7.1 Total VOC Content of the Input VOC Containing Liquid.

$$L = \sum_{j=1}^n V_{Ij} W_{Ij} = \sum_{j=1}^n S V_{Fj} W_{Fj} + S V_{Aj} W_{Aj} \quad \text{Eq. 1}$$

## 7.2 Liquid Sample Analysis System Response Factor for Systems Using Integrators, Grams/Area Counts.

$$RF = \frac{C_S q T_S K}{A_S} \quad \text{Eq. 2}$$

## 7.3 VOC Content of the Liquid Sample.

$$V = \frac{A_L RF}{M_L} \quad \text{Eq. 3}$$

Procedure T - Criteria for and Verification of a Permanent or Temporary Total Enclosure

## 1. INTRODUCTION

1.1 Applicability. This procedure is used to determine whether a permanent or temporary enclosure meets the criteria of a total enclosure.

1.2 Principle. An enclosure is evaluated against a set of criteria. If the criteria are met and if all the exhaust gases are ducted to a control device, then the volatile organic compounds (VOC) capture efficiency (CE) is assumed to be 100 percent and CE need not be measured. However, if part of the exhaust gas stream is not ducted to a control device, CE must be determined.

## 2. DEFINITIONS

2.1 Natural Draft Opening (NDO) -- Any permanent opening in the enclosure that remains open during operation of the facility and is not connected to a duct in which a fan is installed.

2.2 Permanent Total Enclosure (PTE) -- A permanently installed enclosure that completely surrounds a source of emissions such that all VOC emissions are captured and contained for discharge



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through a control device.

2.3 Temporary Total Enclosure (TTE) -- A temporarily installed enclosure that completely surrounds a source of emissions such that all VOC emissions are captured and contained for discharge through ducts that allow for the accurate measurement of VOC rates.

3. CRITERIA OF A TEMPORARY TOTAL ENCLOSURE

- 3.1 Any NDO shall be at least 4 equivalent opening diameters from each VOC emitting point.
- 3.2 Any exhaust point from the enclosure shall be at least 4 equivalent duct or hood diameters from each NDO.
- 3.3 The total area of all NDO's shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling.
- 3.4 The average facial velocity (FV) of air through all NDO's shall be at least 3,600 m/hr (200 fpm). The direction of air through all NDO's shall be into the enclosure.
- 3.5 All access doors and windows whose areas are not included in Section 3.3 and are not included in the calculation in Section 3.4 shall be closed during routine operation of the process.

4. CRITERIA OF A PERMANENT TOTAL ENCLOSURE

- 4.1 Same as Sections 3.1 and 3.3 - 3.5.
- 4.2 All VOC emissions must be captured and contained for discharge through a control device.
5. PROCEDURE
- 5.1 Determine the equivalent diameters of the NDO's and determine the distances from each VOC emitting point to all NDO's. Determine the equivalent diameter of each exhaust duct or hood and its distance to all NDO's. Calculate the distances in terms of equivalent diameters. The number of equivalent diameters shall be at least 4.
- 5.2 Measure the total area ( $A_t$ ) of the enclosure and the total

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area ( $A_M$ ) of all NDO's of the enclosure. Calculate the NDO to enclosure area ratio (NEAR) as follows:

$$\text{NEAR} = A_M / A_t$$

The NEAR must be  $< 0.05$ .

5.3 Measure the volumetric flow rate, corrected to standard conditions, of each gas stream exiting the enclosure through an exhaust duct or hood using EPA Method 2. In some cases (e.g., when the building is the enclosure), it may be necessary to measure the volumetric flow rate, corrected to standard conditions, of each gas stream entering the enclosure through a forced makeup air duct using Method 2. Calculate FV using the following equation:

$$\text{FV} = [Q_0 - Q_1] / A_M$$

where:

$Q_0$  = the sum of the volumetric flow from all gas streams exiting the enclosure through an exhaust duct or hood.

$Q_1$  = the sum of the volumetric flow from all gas streams into the enclosure through a forced makeup air duct; zero, if there is no forced makeup air into the enclosure.

$A_M$  = total area of all NDO's in enclosure.

The FV shall be at least 3,600 m/hr (200 fpm).

5.4 Verify that the direction of air flow through all NDO's is inward. Use streamers, smoke tubes, tracer gases, etc. Strips of plastic wrapping film have been found to be effective. Monitor the direction of air flow at intervals of at least 10 minutes for at least 1 hour.

6. QUALITY ASSURANCE

6.1 The success of this protocol lies in designing the TTE to simulate the conditions that exist without the TTE, i.e., the effect of the TTE on the normal flow patterns around the affected facility or the amount of fugitive VOC emissions should be



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minimal. The TTE must enclose the application stations, coating reservoirs, and all areas from the application station to the oven. The oven does not have to be enclosed if it is under negative pressure. The NDO's of the temporary enclosure and a fugitive exhaust fan must be properly sized and placed.

6.2. Estimate the ventilation rate of the TTE that best simulates the conditions that exist without the TTE, i.e., the effect of the TTE on the normal flow patterns around the affected facility or the amount of fugitive VOC emissions should be minimal. Figure 1 may be used as an aid. Measure the concentration ( $C_g$ ) and flow rate ( $Q_g$ ) of the captured gas stream, specify a safe concentration ( $C_F$ ) for the fugitive gas stream, estimate the CE, and then use the plot in Figure 1 to determine the volumetric flowrate of the fugitive gas stream ( $Q_F$ ). A fugitive VOC emission exhaust fan that has a variable flow control is desirable.

6.2.1 Monitor the concentration of VOC into the capture device without the TTE. To minimize the effect of temporal variation on the captured emissions, the baseline measurement should be made over as long a time period as practical. However, the process conditions must be the same for the measurement in Section 6.2.3 as they are for this baseline measurement. This may require short measuring times for this quality control check before and after the construction of the TTE.

6.2.2 After the TTE is constructed, monitor the VOC concentration inside the TTE. This concentration shall not continue to increase and must not exceed the safe level according to OSHA requirements for permissible exposure limits. An increase in VOC concentration indicates poor TTE design or poor capture efficiency.

6.2.3 Monitor the concentration of VOC into the capture device with the TTE. To limit the effect of the TTE on the process, the VOC concentration with and without the TTE must be within  $\pm 10$  percent. If the measurements do not agree, adjust the ventilation rate from the TTE until they agree within 10 percent.

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APPENDIX C  
REFERENCE METHODS AND PROCEDURES

## Introduction

This Appendix presents the reference methods and procedures required for implementing Reasonably Available Control Technology (RACT). Methods and procedures are identified for two types of ACT implementation:

- a) Determination of VOC destruction efficiency for evaluating compliance with the 98 weight percent VOC reduction or 20 ppmv emission limit specified in Sections 215.520 through 215.527; and
- b) Determination of offgas flowrate, hourly emissions and stream net heating value for calculating TRE.

All reference methods identified in this Appendix refer to the reference methods specified at 40 CFR 60, Appendix A, incorporated by reference in Section 215.105.

## VOC DESTRUCTION EFFICIENCY DETERMINATION

The following reference methods and procedures are required for determining compliance with the percent destruction efficiency specified in Sections 215.520 through 215.527.

- a) Reference Method 1 or 1A for selection of the sampling site. The control device inlet sampling site for determination of vent stream molar composition or total organic compound destruction efficiency shall be prior to the inlet of any control device and after all recovery devices.
- b) Reference Methods 2, 2A, 2C or 2D for determination of the volumetric flowrate.
- c) Reference Method 3 to measure oxygen concentration of the air dilution correction. The emission sample shall be corrected to 3 percent oxygen.
- d) Reference Method 18 to determine the concentration of total organic compounds (minus methane and ethane) in the control device outlet and total organic compound reduction efficiency of the control device.



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## TRE DETERMINATION

The following reference methods and procedures are required for determining the offgas flowrate, hourly emissions, and the net heating value of the gas combusted to calculate the vent stream TRE.

- a) Reference Method 1 or 1A for selection of the sampling site. The sampling site for the vent stream flowrate and molar composition determination prescribed in (b) and (c) shall be prior to the inlet of any combustion device, prior to any post-reactor dilution of the stream with air and prior to any post-reactor introduction of halogenated compounds into the vent stream. Subject to the preceding restrictions on the sampling site, it shall be after the final recovery device. If any gas stream other than the air oxidation vent stream is normally conducted through the recovery system of the affected facility, such stream shall be rerouted or turned off while the vent stream is sampled, but shall be routed normally prior to the measuring of the initial value of the monitored parameters for determining compliance with the recommended RACT. If the air oxidation vent stream is normally routed through any equipment which is not a part of the air oxidation process as defined in 35 Ill. Adm. Code 211.122, such equipment shall be bypassed by the vent stream while the vent stream is sampled, but shall not be bypassed during the measurement of the initial value of the monitored parameters for determining compliance with Subpart V.

- b) The molar composition of the vent stream shall be determined using the following methods:

- 1) Reference Method 18 to measure the concentration of all organics, including those containing halogens, unless a significant portion of the compounds of interest are polymeric (high molecular weight), can polymerize before analysis or have low vapor pressures, in which case Reference Method 25(a) shall be used.
- 2) ASTM D1946-67 (reapproved 1977), incorporated by reference in Section 215.105, to measure the concentration of carbon monoxide and hydrogen.
- 3) Reference Method 4 to measure the content of water vapor, if necessary.

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- c) The volumetric flowrate shall be determined using Reference Method 2, 2A, 2C or 2D, as appropriate.
- d) The net heating value of the vent stream shall be calculated using the following equation:

$$H = K \sum_{i=1}^n C_i H_i$$

Where:

- H = Net heating value of the sample, MJ/scm, where the net enthalpy per mole of offgas is based on combustion at 25°C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20°C, as in the definition of F (vent stream flowrate) below.
- K = Constant,  $1.740 \times 10^{-7}$  (1/ppm) (mole/scm) (MJ/kcal) where standard temperature for mole/scm is 20°C.
- C<sub>i</sub> = Concentration of sample component i, reported on a wet basis, in ppm, as measured by Reference Method 18 or ASTM D1946-67 (reapproved 1977), incorporated by reference in Section 215.105.

- H<sub>i</sub> = Net heat of combustion of sample component i, kcal/mole based on combustion at 25°C and 760 mm Hg. If published values are not available or cannot be calculated, the heats of combustion of vent stream components are required to be determined using ASTM D2382-76, incorporated by reference in Section 215.105.

- e) The emission rate of total organic compounds in the process vent stream shall be calculated using the following equation:

$$E = K \sum_{i=1}^n F C_i M_i$$



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## Where:

- E = Emission rate of total organic compounds (minus methane and ethane) in the sample in kg/hr.
- K = Constant  $2.494 \times 10^{-6}$  (1/ppm) (mole/scm) (kg/g) (min/hr), where standard temperature for (mole/scm) is 20°C.
- Mi = Molecular weight of sample component i (g/mole).
- F = Vent stream flowrate (scm/min), at a standard temperature of 20°C.

f) The total vent stream concentration (by volume) of compounds containing halogens (ppmv, by compound) shall be summed from the individual concentrations of compounds containing halogens which were measured by Reference Method 18.

APPENDIX D  
COEFFICIENTS FOR THE TOTAL RESOURCE  
EFFECTIVENESS INDEX (TRE) EQUATION

This Appendix contains values for the total resource effectiveness index (TRE) equation in Subpart V.

If a flow rate falls exactly on the boundary between the indicated ranges, the operator shall use the row in which the flow rate is maximum.

COEFFICIENTS FOR TRE EQUATION  
FOR CHLORINATED PROCESS VENT STREAMS WITH  
NET HEATING VALUE LESS THAN  
OR EQUAL TO 3.5 MJ/scm

FLOW RATE (scm/min)							
Min.	Max.	a	b	c	d	e	f
0.0	13.5	48.73	0.	0.404	-0.1632	0.	0.
13.5	700.	42.35	0.624	0.404	-0.1632	0.	0.0245
700.	1400.	84.38	0.678	0.404	-0.1632	0.	0.0346
1400.	2100.	126.41	0.712	0.404	-0.1632	0.	0.0424
2100.	2800.	168.44	0.747	0.404	-0.1632	0.	0.0490
2800.	3500.	210.47	0.758	0.404	-0.1632	0.	0.0548

COEFFICIENTS FOR TRE EQUATION  
FOR CHLORINATED PROCESS VENT STREAMS WITH  
NET HEATING VALUE GREATER THAN 3.5 MJ/scm

FLOW RATE (scm/min)							
Min.	Max.	a	b	c	d	e	f
0.	13.5	47.76	0.	-0.292	0.	0.	0.
13.5	700.	41.58	0.605	-0.292	0.	0.	0.0245
700.	1400.	82.84	0.658	-0.292	0.	0.	0.0346
1400.	2100.	123.10	0.691	-0.292	0.	0.	0.0424
2100.	2800.	165.36	0.715	-0.292	0.	0.	0.0490
2800.	3500.	206.62	0.734	-0.292	0.	0.	0.0548



## POLLUTION CONTROL BOARD

## NOTICE OF PROPOSED RULES

## POLLUTION CONTROL BOARD

## NOTICE OF PROPOSED RULES

COEFFICIENTS FOR TRE EQUATION  
FOR NONCHLORINATED PROCESS VENT STREAMS WITH  
NET HEATING VALUE LESS THAN  
OR EQUAL TO 0.48 MJ/scm

FLOW RATE (scm/min)							
Min.	Max.	a	b	c	d	e	f
0.	13.5	19.05	0.	0.113	-0.214	0.	0.
13.5	1350.	16.61	0.239	0.113	-0.214	0.	0.0245
1350.	2700.	32.91	0.260	0.113	-0.214	0.	0.0346
2700.	4050.	49.21	0.273	0.113	-0.214	0.	0.0424

COEFFICIENTS FOR TRE EQUATION FOR NONCHLORINATED  
PROCESS VENT STREAMS WITH NET HEATING VALUE  
GREATER THAN 0.48 AND LESS THAN OR  
EQUAL TO 1.9 MJ/scm

FLOW RATE (scm/min)							
Min.	Max.	a	b	c	d	e	f
0.	13.5	19.74	0.	0.400	-0.202	0.	0.
13.5	1350.	18.30	0.138	0.400	-0.202	0.	0.0245
1350.	2700.	36.28	0.150	0.400	-0.202	0.	0.0346
2700.	4050.	54.26	0.158	0.400	-0.202	0.	0.0424

COEFFICIENTS FOR TRE EQUATION FOR NONCHLORINATED  
PROCESS VENT STREAMS WITH NET HEATING VALUE  
GREATER THAN 1.9 AND LESS THAN OR  
EQUAL TO 3.6 MJ/scm

FLOW RATE (scm/min)							
Min.	Max.	a	b	c	d	e	f
0.	13.5	15.24	0.	0.033	0.	0.	0.
13.5	1190.	13.63	0.157	0.033	0.	0.	0.0245
1190.	2380.	26.95	0.171	0.033	0.	0.	0.0346
2380.	3570.	40.27	0.179	0.033	0.	0.	0.0424

COEFFICIENTS FOR TRE EQUATION  
FOR NONCHLORINATED PROCESS VENT STREAMS WITH  
NET HEATING VALUE GREATER THAN 3.6 MG/scm

FLOW RATE (scm/min)							
Min.	Max.	a	b	c	d	e	f
0.	13.5	15.24	0.	0.	0.0090	0.	0.
13.5	1190.	13.63	0.	0.	0.0090	0.0503	0.0245
1190.	2380.	26.95	0.	0.	0.0090	0.0546	0.0346
2380.	3570.	40.27	0.	0.	0.0090	0.0573	0.0424



## CARNIVAL-AMUSEMENT SAFETY BOARD

## NOTICE OF ADOPTED AMENDMENTS

1) Heading of the Part: Carnival and Amusement Ride Inspection Law

2) Code Citation: 56 Ill. Adm. Code 6000

3) Section Numbers:

6000.10  
6000.280  
6000.330

Adopted Action

Amendment  
Amendment  
New Section

4) Statutory Authority: Ill. Rev. Stat. 1987, ch. 111½, par. 4051 et seq.

5) Effective Date of Amendments: February 28, 1991

6) Does this rulemaking contain an automatic repeal date? No

7) Does this Amendment contain incorporation by reference? No

8) Date Filed in Agency's Principal Office: February 21, 1991

9) Notice of Proposal Published in Illinois Register? March 2, 1990,  
14 Ill. Reg. 2989

10) Has JCAR issued a Statement of Objections to these amendments? No

11) Difference between proposal and final version:

The Secretary of State's Administrative Code Unit requested the following changes:

A. Main Source: Added; "amended at Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_)" immediately following the emergency source.

B. Section 6000.10 - Reversed the order of "ASTM" and "ASNT" in order to maintain the alphabetical order.

C. Section 6000.10 - in the definition of "Tram" - added "(Section 2-2 of the Act)" following Hayrack Rides.

The following changes were made at the request of JCAR:

A. In the authority note - "1987" was changed to "1989" and "as amended by P.A. 86-543, effective September 1, 1989" was deleted.

B. In Section 6000.10 - line 2, "1987" was changed to "1989".

C. In Section 6000.10 - ASNT was changed from "2153 Arlington Plaza, Caller #25818" to "1711 Arlington Plaza, P.O. Box 25818".

## CARNIVAL-AMUSEMENT SAFETY BOARD

## NOTICE OF ADOPTED AMENDMENTS

Difference between proposal and final version (Cont'd.)

D. In Section 6000.330(a) - "must" was changed to "shall".

E. In Section 6000.300(i) - "with either natural or artificial light to assume safe access and egress" was added.

12) Have all the changes agreed upon by the agency and JCAR been made as indicated in the agreement letter issued by JCAR? Yes

13) Will these Amendments replace an Emergency Rule currently in effect? No

14) Are there any amendments pending on this Part? No

15) Summary and Purpose of Amendments: These amendments implement the changes to the Carnival and Amusement Rides Safety Act (Ill. Rev. Stat. 1989, ch. 111 1/2, pars. 4051 et. seq.) as amended by P.A. 86-543, effective September 1, 1989, and Carnival-Amusement Safety Board action of January 20, 1990.

16) Information and questions regarding this Adopted Amendment shall be directed to:

Name: Carl Kimble, Chief Inspector  
Address: Illinois Department of Labor  
#1 W. Old State Capitol Plaza, Room 300  
Springfield, Illinois 62701  
Telephone: 217-782-9347

The full text of the Adopted Amendments begins on the next page.



## CARNIVAL-AMUSEMENT SAFETY BOARD

## NOTICE OF ADOPTED AMENDMENTS

TITLE 56: LABOR AND EMPLOYMENT  
CHAPTER XIII: CARNIVAL-AMUSEMENT SAFETY BOARDPART 6000  
CARNIVAL AND AMUSEMENT RIDE INSPECTION LAW

Section	Definitions
6000.10	Exemptions
6000.20	Inspections
6000.30	Application for a Permit to Operate
6000.40	Permit and Inspection Fees
6000.50	Revocation of Permit to Operate (Repealed)
6000.60	Suspension of Permit to Operate
6000.65	Ride Design and Construction
6000.70	Insurance
6000.80	Penalties
6000.90	Appeals
6000.100	Assembly and Disassembly
6000.110	Operator Requirements
6000.120	Passenger Conduct
6000.130	Signal Systems
6000.140	Daily Inspection and Test
6000.150	Reports
6000.160	Maintenance
6000.170	Stop Operation Order
6000.180	Fire Prevention and Protection
6000.190	Internal Combustion Engines
6000.200	Means of Access and Egress
6000.210	Electrical Equipment
6000.220	Hydraulic Systems
6000.230	Air Compressors and Equipment
6000.240	Wire Rope
6000.250	Chain
6000.260	Inflated Amusement Attractions and Inflated Buildings
6000.270	Non-Destructive Testing
6000.280	Ski Lifts, Aerial Tramways, and Rope Tows
6000.290	Go-Karts, Dune Buggies and All-Terrain Vehicles
6000.300	Water Slides
6000.310	Dry Type Slides
6000.320	Trams
6000.330	

AUTHORITY: Implementing and authorized by the Carnival and Amusement Rides Safety Act (Ill. Rev. Stat. 1989, ch. 111 1/2, pars. 4051 et seq.).

SOURCE: Emergency Rules adopted at 9 Ill. Reg. 7176, effective May 3, 1985, for a maximum of 150 days; emergency expired September 30, 1985; adopted at 10 Ill. Reg. 7685, effective April 29, 1986; emergency amendment at 10 Ill. Reg. 19117, effective October 27, 1986, for a maximum of 150 days; amended at 11

## CARNIVAL-AMUSEMENT SAFETY BOARD

## NOTICE OF ADOPTED AMENDMENTS

Ill. Reg. 5896, effective March 24, 1987; amended at 11 Ill. Reg. 19650, effective November 18, 1987; amended at 12 Ill. Reg. 11186, effective June 20, 1988; emergency amendment at 13 Ill. Reg. 8025, effective May 15, 1989, for a maximum of 150 days, emergency expired October 12, 1989; amended at 13 Ill. Reg. 20309, effective January 1, 1990; emergency amendment at 14 Ill. Reg. 3235, effective 2/9/90, for a maximum of 150 days; amended at 15 Ill. Reg. 4109, effective February 28, 1991

NOTE: Capitalization denotes statutory language.

## Section 6000.10 Definitions

In addition to those definitions found in Section 2-2 of The Carnival and Amusement Rides Safety Act (the Act), (Ill. Rev. Stat. 1989, ch. 111 1/2, par. 4052), the following definitions shall apply for the purposes of these regulations:

"Annual Inspection" is the official inspection of a ride or device made by the Director or his designee.

"ANSI" is the abbreviation for the American National Standards Institute, Inc., 1430 Broadway, New York, New York 10018.

"ASNT" is the abbreviation for the American Society for Nondestructive Testing, Inc., 1711 Arlington Plaza, P.O. Box 28518, Columbus, Ohio 43228-0518.

"ASTM" is the abbreviation for American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

"DEPARTMENT" MEANS ILLINOIS DEPARTMENT OF LABOR. (Section 2-2 of the Act)

"DIRECTOR" MEANS THE DIRECTOR OF THE ILLINOIS DEPARTMENT OF LABOR OR HIS DESIGNEE. (Section 2-2 of the Act)

"DRY SLIDES" means an inclined surface with a change in elevation of twenty feet or more upon which people slide or are conveyed.

"FLUME" means an inclined channel which conveys the water and the slide participant from the top of the slide to the plunge pool.

"Kiddie Rides" are those rides which are designed for 75 pounds or less per passenger.

"Major Alteration" means a change in the type or capacity of an amusement ride or amusement attraction or a change in the structure or mechanism that materially affects its functions or operation.



## CARNIVAL-AMUSEMENT SAFETY BOARD

## NOTICE OF ADOPTED AMENDMENTS

## Section 6000.10 Definitions (Cont'd.)

This includes, but is not limited to changing its mode of transportation from non-wheeled to a truck or flat-bed mount, and changing its mode of assembly or other operational functions from manual to mechanical or hydraulic.

"Major Breakdown" means a stoppage of operation of an amusement ride or amusement attraction occurring from damage of a structural component.

"Major Rides" are those rides which are designed for more than 75 pounds per passenger unit.

"NFPA" is the abbreviation for National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269.

"OPERATOR" MEANS A PERSON, OR AGENT OF A PERSON, WHO OWNS OR CONTROLS OR HAS THE DUTY TO CONTROL THE OPERATION OF AN AMUSEMENT RIDE OR AMUSEMENT ATTRACTION AT A CARNIVAL OR FAIR. "OPERATOR" INCLUDES AN AGENCY OF THE STATE OR ANY OF ITS POLITICAL SUBDIVISIONS. (Section 2-2 of the Act)

"Payment of Fees" as used in this Part shall be deemed made if the department receives all fees assessed in the form of a check or money order made payable to "Illinois Department of Labor" no later than seven calendar days after the date of inspection. When an inspector presents to the operator an invoice for all applicable fees due, the operator's signature thereon shall constitute an acknowledgment by the operator that the fee amount is correct and is properly due and owing the Department.

"Permit" means a permit issued annually by the Department to an operator allowing an amusement ride or an amusement attraction unit to be operated in the State of Illinois.

"Plunge Pool" means a pool or artificial body of water into which a person exits from a water slide.

"Reinspection" is an inspection, other than the annual inspection made during the year, as a result of any necessary repairs not being completed while the inspector is on site.

"Serious Injury" means an injury for which treatment by a licensed physician is required.

"Tram" means: ANY TRAM, OPEN CAR, OR COMBINATION OF OPEN CARS OR WAGONS PULLED BY A TRACTOR OR OTHER MOTORIZED DEVICE WHICH IS NOT LICENSED BY THE SECRETARY OF STATE, WHICH MAY, BUT DOES NOT NECESSARILY FOLLOW A FIXED OR RESTRICTED COURSE, AND IS USED

## CARNIVAL-AMUSEMENT SAFETY BOARD

## NOTICE OF ADOPTED AMENDMENTS

## Section 6000.10 Definitions (Cont'd.)

PRIMARILY FOR THE PURPOSE OF GIVING ITS PASSENGERS AMUSEMENT, PLEASURE, THRILLS OR EXCITEMENT, AND FOR WHICH AN INDIVIDUAL FEE IS CHARGED OR A DONATION ACCEPTED WITH THE EXCEPTION OF HAYRACK RIDES. (Section 2-2 of the Act)

(Source: Amended at 15 Ill. Reg. 4109, effective February 28, 1991

## Section 6000.280 Non-Destructive Testing

- a) Operators shall provide the Department with a certificate of non-destructive testing for each part which the manufacturer recommends testing or the Board requires to be tested.
- b) Persons performing non-destructive testing on amusement ride components shall be qualified to NDT Level II or NDT Level III, in accordance with the American Society for Nondestructive Testing Recommended Practice No. SNT-TC-1A. The American Society for Nondestructive Testing Recommended Practice No. SNT-TC-1A, 1984 Edition, is hereby incorporated by reference and does not include any later editions, amendments, or corrections. Only individuals qualified may perform non-destructive testing on amusement ride components. The Department may require qualifications of personnel or accept previous qualification at their option.
- c) The Board shall direct the Department to require the non-destructive testing of any part, which if failure were to occur, would result in a major breakdown. The Board shall designate the part(s) to be tested, the date by which the initial test certificate shall be submitted to the Department and the frequency at which the test is to be repeated.

- d) The Department shall maintain a listing of all ride components requiring non-destructive testing. Such certificates are required for the following as of June 24, 1988:

RIDE NAME	COMPONENT	FREQUENCY
Round-Up	Main boom rocker shaft Cylinder anchor shaft Spindle	Semi Annually as follows: For Round-Up rides operating in Illinois on or between April 1 and September 30; the NDT must be performed after March 22 and before



## CARNIVAL-AMUSEMENT SAFETY BOARD

## NOTICE OF ADOPTED AMENDMENTS

## Section 6000.280 Non-Destructive Testing (Cont'd.)

operation.  
Unless at the  
time of the NDT  
inspection the  
Department places  
a seal upon the  
ride prohibiting  
the assembly and  
operation until  
the Department  
removes that  
seal. For Round-  
Up rides  
operating in  
Illinois on or  
between October 1  
and March 31; the  
NDT must be  
performed after  
September 22 and  
before operation.

Coasters  
by  
Arrow-Huss

Welded areas of track  
Anti-roll back units  
Chain guide wheel spindles  
Axle housings  
Wheel Carrier weldments  
Chassis main vertical spindle  
Body support frame  
Hitch yoke

Annually

Enterprise

Bearing block holders  
Car structure parts  
of the roof and parts  
above, at, and below  
pivot pins; and for  
cracks in the welds  
of these parts and  
the welds that attach  
these parts.

Annually

Fireball

Spindle

Every 2 Years

Force 10

Car Hanger Shaft

Annually

Hustler

Secondary sweep shafts

Annually

Octopus

Eccentric  
Sweep support rods

Annually

## CARNIVAL-AMUSEMENT SAFETY BOARD

## NOTICE OF ADOPTED AMENDMENTS

## Section 6000.280 Non-Destructive Testing (Cont'd.)

Paratrooper	Spindle	Every 2 Years
Sky Wheel	All Axles	Annually
Spider	Eccentric Sweeps	Annually
	Sweep support rods	
Tempest	Secondary sweep shafts	Annually
Yo-Yo	Sweep lift cylinder	Every 5 Years

(Source: Amended at 15 Ill. Reg. 4109, effective February 28, 1991)

## Section 6000.330 Trams

- a) If the tram is used where other vehicular traffic is present, each car shall be equipped so as to prevent passengers from getting on or off except at designated stops.
- b) Each tram car shall be equipped with a signal system complying to Section 6000.140.
- c) The driver shall not start the tram until all passengers are seated.
- d) The maximum allowable side to side motion when the tram is in motion shall not exceed six inches.
- e) All hitches must be equipped with safety chains.

1) To keep the tram together.

2) To keep the wagon tongue from hitting the ground.

f) Any axle extending beyond the face of the wheel shall be covered and/or guarded with a non-rotating shield.

g) Passengers shall not have to step up or down more than 12 inches to enter or exit the car.

h) Each loading/unloading area shall be fenced or otherwise guarded.

i) If tram is operated after dusk, it shall be equipped with head, side and tail lights and loading/unloading area shall be suitably illuminated with either natural or artificial light to assure safe access and egress.

(Source: Added at 15 Ill. Reg. 4109, effective February 28, 1991)



DEPARTMENT OF CONSERVATION

NOTICE OF ADOPTED AMENDMENTS

- 1) HEADING OF THE PART: Boat Access Area Construction Program
- 2) CODE CITATION: 17 Ill. Adm. Code 3035
- 3) SECTION NUMBERS:
- ADOPTED ACTION:

Amendments  
Amendments  
Amendments  
Amendments  
Amendments
- 4) STATUTORY AUTHORITY: Implementing and authorized by Section 63a25 of the Civil Administrative Code (Ill. Rev. Stat. 1989, ch. 127, par. 63a25) and Section 1 The Boat Registration and Safety Act (Ill. Rev. Stat. 1989, ch. 95 1/2, par. 320-1).
- 5) EFFECTIVE DATE OF AMENDMENTS: March 4, 1991
- 6) DOES THIS RULEMAKING CONTAIN AN AUTOMATIC REPEAL DATE? No
- 7) DO THESE AMENDMENTS CONTAIN INCORPORATIONS BY REFERENCE? No
- 8) DATE FILED IN AGENCY'S PRINCIPAL OFFICE: March 1, 1991
- 9) NOTICE OF PROPOSAL PUBLISHED IN ILLINOIS REGISTER: November 16, 1990, 14 Ill. Reg. 18365
- 10) HAS JCAR ISSUED A STATEMENT OF OBJECTIONS TO THESE RULES: No
- 11) DIFFERENCES BETWEEN PROPOSAL AND FINAL VERSION:
- In the Main Source Note, "; amended at 15 Ill. Reg. \_\_\_\_\_, effective \_\_\_\_\_." was added at the end of the paragraph.
- All Section Source Notes were updated to "15" Ill. Reg.
- In Section 3035.10, "program" was changed to "Boat Access Area Development Program."

In Section 3035.40(b)(7), "(P.A. 86-707)" was changed to "(Ill. Rev. Stat. 1989, ch. 127, par. 133c21, et seq.)"; "(P.A. 82-945)" was changed to "(Ill. Rev. Stat. 1989, ch. 5, par. 1301 et seq.)"; and "(P.A. 89-2780)" was changed to read "(Ill. Rev. Stat. 1989, ch. 95 1/2, par. 9701, et seq.)".

DEPARTMENT OF CONSERVATION

NOTICE OF ADOPTED AMENDMENTS

- In Section 3035.70(b), "completed to Department specifications" was changed to read "full analytical narrative reports prepared by certified appraisers" and "can" in line 11 was changed to "shall".
- In Section 3035.70(c), "as specified herein" was changed to read "as specified in subsection (p)".
- In Section 3035.70(o)(1)(F), "the facility" was changed to read "any facility funded through Marine Motor Fuel Tax Funds."
- In Section 3035.70(p), "may" was changed to "must" and "will" was changed to "shall".
- 12) HAVE ALL THE CHANGES AGREED UPON BY THE AGENCY AND JCAR BEEN MADE AS INDICATED IN THE AGREEMENT LETTER ISSUED BY JCAR? Yes
- 13) WILL THESE AMENDMENTS REPLACE AN EMERGENCY RULE (AMENDMENT, REPEALER) CURRENTLY IN EFFECT? No
- 14) ARE THERE ANY AMENDMENTS PENDING ON THIS PART? No
- 15) SUMMARY AND PURPOSE OF AMENDMENTS: This Part provides programmatic and regulatory framework for administration of the Department of Conservation's Boat Access Area grant program for local units of government. These changes reflect proposed changes in the program to: (1) allow canoe access and land acquisition projects for boat ramp areas eligible for assistance under the program; and (2) to modify the rating criteria for evaluation/prioritizing projects.
- 16) INFORMATION AND QUESTIONS REGARDING THESE ADOPTED AMENDMENTS SHALL BE DIRECTED TO:

Jack Price  
Department of Conservation  
524 S. Second Street, Room 485  
Springfield, IL 62701-1787

THE FULL TEXT OF THE ADOPTED AMENDMENTS BEGINS ON THE NEXT PAGE:



## DEPARTMENT OF CONSERVATION

## NOTICE OF ADOPTED AMENDMENTS

TITLE 17: CONSERVATION  
CHAPTER 1: DEPARTMENT OF CONSERVATION  
SUBCHAPTER 9: GRANTSPART 3035  
BOAT ACCESS AREA CONSTRUCTION/DEVELOPMENT PROGRAM

Section  
3035.10  
3035.20  
3035.30  
3035.40  
3035.50  
3035.60  
3035.70  
3035.80

Program Objectives  
Eligibility Requirements  
Assistance Formula  
General Procedures for Grant Awards  
Applicable Facilities  
Selection Criteria  
Program Compliance Requirements  
Program Information Contact

**AUTHORITY:** Implementing and authorized by Section 63a25 of the Civil Administrative Code (Ill. Rev. Stat. 1989, ch. 127, par. 63a25) and Section 1 The Boat Registration and Safety Act (Ill. Rev. Stat. 1989, ch. 95 1/2, par. 320-1).

**SOURCE:** Adopted and codified at 7 Ill. Reg. 5858, effective April 27, 1983; amended at 9 Ill. Reg. 2910, effective February 26, 1985; amended at 11 Ill. Reg. 15896, effective September 21, 1987; amended at 15 Ill. Reg. 4117, effective March 4, 1991.

## Section 3035.10 Program Objectives

The purpose of the ~~program~~ Boat Access Area Development Program is to provide financial assistance to Local Agencies to encourage the ~~construction~~ development, improvement and expansion of public boat access areas in Illinois.

(Source: Amended at 15 Ill. Reg. 4117, effective March 4, 1991)

## Section 3035.30 Assistance Formula

~~The project funding is determined by the amount of available grant funding, the type and extent of the project, and the local agency participation.~~ Financial Assistance up to 100% of eligible project construction costs and 50% of eligible project land acquisition costs can be provided through this program.

(Source: Amended at 15 Ill. Reg. 4117, effective March 4, 1991)

## DEPARTMENT OF CONSERVATION

## NOTICE OF ADOPTED AMENDMENTS

## Section 3035.40 General Procedures for Grant Awards

a) Grant applications for funding assistance under the program must be submitted to the Department no later than March 1 of each calendar year. Awarding of grants will be made under the authority and directive of the Director of the Department after the beginning of the fiscal year on July 1. The number of grants awarded is limited to the total amount of funds available for the program in the given fiscal year.

b) The project application consists of the following components:

1) Completed application forms

2) Location map

3) Site plan

4) ~~Estimate of cost~~ Site Premise/Plat Map

5) Resolution of the governing body of the Local Agency authorizing submittal of an application for assistance from the Boat Access Area Construction program and indicating the name, address, telephone number and title of the person to contact if it is necessary to clarify any of the information submitted in the project application.

6) Proof of land ownership or lease

7) Illinois Historic Preservation Agency sign-off regarding historical resource impact (Ill. Rev. Stat. 1989, ch. 127, par. 133c21 et seq.), Illinois Department of Agriculture sign-off regarding prime farmland impact (Ill. Rev. Stat. 1989, ch. 5, par. 1301 et seq.) and Department of Conservation sign-off regarding wetland impact (Ill. Rev. Stat. 1989, ch. 96 1/2, par. 9701 et seq.).

(Source: Amended at 15 Ill. Reg. 4117, effective March 4, 1991)

## Section 3035.50 Applicable Facilities

The following facilities are eligible for consideration in the



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## construction of boat access areas:

- a) Boat and canoe launching ramp/area
- b) Maneuvering area for car and trailer adjacent to ramps
- c) Parking area to service ramp users
- d) Access road to the ramp (up to 1/4 mile in length) and parking area
- e) Sanitary facilities including potable water supply and sewage facilities
- f) Initial channel improvements in launching ramp area
- g) Security lighting
- h) Walkways adjacent to and serving ramp
- i) Courtesy docks
- j) Marine sanitary disposal stations
- k) Docks to support gas pumps
- l) ~~Preject-sig~~Land acquisition necessary to provide boating access to Illinois' surface waters
- m) Other facilities deemed by the Department to add to the ease of operations or maintenance, or add to the use of the facility, so long as it applies to, and is of use to the boating public.

(Source: Amended at 15 Ill. Reg. 4117, effective March 4, 1991)

## Section 3035.60 Selection Criteria

- a) The following criteria will be taken into consideration by the Department in evaluating and selecting projects for funding. Numerical values will be established for each of the criteria as follows:
  - 1) Financial Cooperation - financial participation by the Local Agency. (0-10)
  - 2) Projected Usage - demand for and anticipated usage

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of the proposed facility. ~~(0-10)~~(0-25)

- 3) Impact on Business - impact on ~~privately~~ ~~owned~~ privately owned boating related business in the area. (0 or -5)
  - 4) Site Suitability - site related conditions and design features relating to the proposed development grant. ~~(0-15)~~(0-20)
  - 5) Program Suitability - is the proposed project in line with the overall purpose of the grant program. (0 or -10)
  - 6) Ability to Maintain - capability of the applicant to operate and maintain the facility. (0-10)
  - 7) User Fees - are user fees being charged; are they fair and equal; are charges the same for residents and non-residents of sponsor's jurisdiction? ~~(0-10)~~(0-5)
  - 8) ~~Population Served - local governments with large population and user demand given highest consideration. (0-10)~~
  - 9) ~~8) Regional/Local Needs - High, medium or low priority regional and county need as identified in the Statewide Comprehensive Outdoor Recreation Plan (SCORP). (0-10)~~(0-8)
  - 9) Water Body Served - priority given to providing boater access to major bodies of water in Illinois. (0-15)
  - 10) Current Access Availability - initial access to body of water given priority. (0-7)
- b) A total of 75 points is available. These applications receiving 60 to 75 points will be considered excellent; 45 to 59 points, good; 30 to 44 points, fair; and below 30 points, poor.
- e) The Grant Section staff will review and, evaluate and prioritize the applications utilizing the criteria listed above and will forward their recommendations to the Director of the Department for a final determination. In arriving at a final determination, the Director will



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consider the recommendations of the Grant Section staff and the criteria listed above.

(Source: Amended at 15 Ill. Reg. 4117, effective March 4, 1991)

## Section 3035.70 Program Compliance Requirements

a) The land to be used in development of boat access areas must be owned in fee simple or leased by the Local Agency. The Local Agency must provide proof of ownership or lease before plans for the facility can proceed. The term of the lease is determined by the amount of the contract.

b) For projects receiving assistance to acquire land for a boat access area, acquisition of the project property must be completed within nine (9) months following project approval, with the exception of those involving eminent domain. An independent appraisal must be completed by the sponsoring agency and certified by the Department to establish a fair market value for the project property. For land valued at over \$25,000, two appraisals are required. The appraisals must be full analytical narrative reports prepared by certified appraisers. Title to any property for which grant reimbursement is sought shall not be taken nor payment made for such property by the sponsoring agency before Department approval is received. Grant payment shall be limited to 50% reimbursement of the certified fair market value and in no case shall exceed actual cash payment for the property.

c) Land acquired with grant assistance must be subsequently developed as a public boat access area in general accordance with the approved project application proposal within three (3) years following the date title is secured for the property. Failure to improve the property for such use within the three (3) year time period shall result in the property being considered "converted" from its intended use necessitating remedial action, as specified in subsection (p) by the Local Agency.

b+d) The Local Agency is required to enter into a Standard Agreement with the Department in an amount agreed upon by the Local Agency and the Department as that necessary to complete the Department's share of project costs. Any

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costs incurred in the development and construction of the facilities in excess of the specified amount shall be paid by the Local Agency.

e+f) The Local Agency shall employ a competent engineering or architectural firm to develop necessary plans and specifications and to provide all other necessary services. Any engineering or architectural agreement or contract must be approved by the Department prior to its acceptance by the Local Agency. The Department shall approve the agreement or contract based upon the design fee, the construction cost, and the project complexity.

e+f) If the Local Agency, by its unilateral action, terminates the project at any point short of its completion, the Local Agency shall be liable for all costs incurred and all monies forwarded to the Local Agency related to the project. The Local Agency shall agree to indemnify the Department and hold it harmless from any and all liability.

e+g) The Local Agency shall present to the Department all plans, specifications, contracts or documents and cost estimates for all work to be done by a specified date. If this date cannot be met, it will be the responsibility of the Local Agency to show cause in writing to the Department. The plans and specifications shall contain the seal and signature of a registered Professional Engineer or Architect as the case may be. The Local Agency shall provide documentation to the Department that advertised bids were published. All work must be advertised for public letting through competitive bidding and all bidding tabulations shall be submitted to the Department for approval of the lowest qualified bid. The Department shall approve the Local Agency's recommendation of the lowest qualified bid provided it does not exceed the grant funding and it is within the engineer's estimate. The Local Agency shall thereafter certify their approval of the lowest qualified bid at their next regular meeting following approval by the Department. The Local Agency shall be responsible for completion of the project within the time period specified in the contract.

f+h) The Local Agency shall insert as an integral part of any contract with the approved bidder the following provisions:



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- 1) That the Contractor shall abide by and comply with all applicable Local, State and Federal laws in connection with contracts involving public funds, the construction or development of public buildings, works or facilities.
- 2) That the Contractor shall furnish to the Local Agency and the Department performance bond(s) with surety or sureties, with penalty or loss clauses, relating to the construction of the proposed facilities and any losses or damages arising out of, or by virtue of said construction by the Contractor of the specified boat launching facilities, insuring, benefitting and protecting the Local Agency and the Department.
- 3) That the Contractor shall personally and individually, agree to furnish evidence of insurance, to indemnify, protect, defend at its own cost, and hold harmless the Local Agency and the Department from and against all losses, damages, injuries, costs, expenses or claims thereof to or by persons or property, arising out of, through, under or by virtue of the construction and development of the specified boat launching or access facilities.
- 4) That the Contractor shall furnish progress or pay estimate reports to the Local Agency and the Department at thirty (30) day intervals indicating:
  - A) Units of work completed, and
  - B) Percentage of work completed for thirty (30) day period and to date.

5) Upon the Department's receipt of each progress report or pay estimate submitted by the Local Agency which is within the scope of the contract, the Department shall issue payment.

6) That the Local Agency and Contractor shall agree to erect a permanent sign at the project entrance in accordance with specifications to be provided by the Department; said sign to constitute a part of the construction contract and to be worded as follows:

"Public boat launching facility provided

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through cooperation of the Illinois Department of Conservation, ~~financed by Marine Fuel Tax Revenue.~~

9) The Local Agency will notify the Department prior to the beginning of any construction. A Department engineer will make inspections of the project as construction progresses and he will be available for assistance upon request. A final inspection of the completed project must be made by the Chief Engineer of the Department or his authorized representative prior to final payment by the Local Agency.

10) The Local Agency shall indemnify, protect, defend and hold harmless the Department from any and all liability, costs, damages, expenses, or claims thereof arising under, through or by virtue of the construction, operation and maintenance of the proposed boat launching and access facilities.

11) The Local Agency shall be responsible for and obtain all necessary Permits, Licenses or Forms of Consent, as the case may be, from, but not limited to the following agencies:

- 1) U.S. Corps of Engineers.
- 2) (State) Department of Transportation (Division of Water Resources or Highways).
- 3) Environmental Protection Agency.
- 4) Local Building or Zoning Agencies, or Boards, where applicable.

12) The Local Agency agrees to comply with the Recreational Area Licensing Act (Ill. Rev. Stat. 1985, ch. 111 1/2, par. 761 et. seq.), the Environmental Barriers Act (Ill. Rev. Stat. 1985, ch. 111 1/2, par. 3713(r)), and Section 11(b) of the Illinois Endangered Species Protection Act (Ill. Rev. Stat. 1985, ch. 8, par. 341(b)).

13) The Local Agency shall agree to abide by the following Operation and Maintenance provisions:

- 1) General.



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- A) The boat launching and access facilities shall be continuously operated and maintained by the Local Agency at no cost to the Department and shall be operated and utilized in such a manner as to maximize the intended benefits to and for the general public.
- B) All land and water areas which are open to the public shall be available for use and enjoyment by the public without regard to race, color, ~~excess~~, national origin, age or disability. No lessee or licensee of an area under a concessionaire providing a service to the public, including facilities and accommodations, shall discriminate against any person or persons because of race, color, ~~excess~~, national origin, age or disability in the conduct of its operation under the lease, license or concession agreement.
- C) No improvements, alterations or modifications of these facilities shall be permitted except with the prior approval in writing by the Department. Approval will be given by the Department if the improvements, alterations or modifications comply with the criteria ~~in~~ Section 3035.50.
- D) The Department shall have access to all facilities at all times.
- E) An official from the Department shall inspect the facilities prior to June 1st of each year to insure all deficiencies reflected in the inspection report have been corrected by the Local Agency.
- F) Boats with gasoline or diesel motors shall not be prohibited from using ~~the~~ any facility funded through Marine Motor Fuel Tax Funds to launch and recover.
- 2) User Fees.
- A) The Department discourages the charging of user fees; however, the Local Agency may, by formal resolution of the governing unit, charge

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- minimal fees to offset operation and maintenance, security, and public health and safety costs.
- B) In the case of locally owned water impoundments the incurred costs to be offset may also include navigational aids, rescue aids, water patrol and other related costs which are absolutely necessary.
- C) No other costs will be allowed in calculating the minimal fee. Any discretionary fee for special services which is not a part of the project funded from Marine Motor Fuel Tax Revenue, such as boat slips, moorings or other services that cannot be used by all boaters, shall be levied separately.
- D) The setting, administering and justifying of the fees to the general public is primarily the responsibility of the Local Agency. The Department reserves the right to ensure that any fee is within the scope of the contract.
- E) The Local Agency shall maintain accounting records to explain receipt and disposition of all fees related to the launching facility and the Department may request or audit such records at anytime to ensure the revenue received from the fees is being used to operate and maintain the facility.
- F) If fees are determined necessary by the Local Agency, the charging of reasonable daily fees as well as seasonal use fees shall be provided to assure that the occasional user is afforded access to the waters served by the facility. In the event the boat access facility is within the boundaries of a public park or recreational area, no annual fee shall be required non-park district residents using only the boat launching facility constructed or improved with the aid of this grant. However, a daily fee may be required by the Local Agency provided it does not exceed the annual park district fee for residents, computed on a daily basis.
- G) Prior to charging of user fees, the Local



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Agency is required to give public notice of said fees at least 30 days in advance of the effective date of such fees and provide a copy of the proposed fee schedule and the public notice to the Department prior to implementation.

H) The method of collecting fees shall be established by the Local Agency. However, the general public shall not be restricted from use of the facility upon arrival if an authorized representative of the Local Agency is not present to receive the required fee.

I) An information sign which lists rules and regulations regarding fees shall be posted in a conspicuous place which is near a boat ramp or launching site.

3) Routine.

The operation and maintenance of the facility is the responsibility of the local agency.

~~h) p) If the Local Agency sells any or all of its property wherein public boat launching facilities have been funded by the Department and which constitute an integral part or portion of the property to be sold by said Local Agency, then the Local Agency shall notify the Department in writing by certified mail of its intention to sell the property within 30 days following its decision to sell the property. Following receipt of this notice of intention to sell, the Department shall thereafter have, and the Local Agency does hereby irrevocably grant, an Option to purchase all or part of the premises intended to be sold by the Local Agency for a period of up to 3 years following the Department's receipt of the required notice. The option or purchase price for said property shall be the average of two appraisals (exclusive of the fair market value of the public boat launching facilities provided by the Department) to be obtained by the Department from independent fee appraisers during the option period and the Department agrees to notify the Local Agency whether it intends to exercise this Option to purchase Properties acquired or developed with grant assistance hereunder must not be converted to a use which would deny public boat access and use of Illinois' surface waters per terms of this Part without prior~~

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Department of Conservation approval. Approval for conversion of property acquired per terms of this Part shall only be granted upon the following:

- 1) the local agency providing replacement property of at least equal fair market value and comparable recreational usefulness, quality and general location; or
- 2) the repayment of funds to the State of Illinois equal to the actual amount of grant funds disbursed hereunder or 50% of the property's certified fair market value at the time of conversion, whichever is greater.

~~h) q) Terms of the agreement for projects receiving development/construction grant assistance only, terms of the grant program agreement between the Local Agency and the Department shall no longer apply after the time period established below relating to the total amount of grant funds received to aid the facility.~~

Total Grant Amount	Time Period After Signing of Grant
0-\$25,000	7 years
\$26,000 - \$100,000	12 years
\$100,000 - \$250,000	17 years
over \$250,000	25 years

~~h) r) Leasing or assignment of a Department funded facility is prohibited without prior notification to the Department.~~

~~e) s) The Local Agency shall agree that in the event of its breach or non-compliance with any of the terms of the agreement between the Local Agency and the Department that ten (10) days following receipt of a written notice from the Department of the existence of said breach or non-compliance, if said condition is not corrected within this ten (10) day period, that the Department shall thereafter have full right and authority to take such action as it deems necessary whether by way of injunction or otherwise to enforce the provisions of the agreement to prevent the continued breach or violation thereof by the Local Agency. It is further agreed by the Local Agency, that in the event it is adjudicated by any court that its activities are deemed to be a breach or violation of the agreement, as a part of the relief~~



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awarded to the Department, that the Local Agency will reimburse the Department for the legal fees and all costs incurred by the Department in the pursuit of its rights under this paragraph. For purposes of this paragraph, "legal fees" shall be deemed to be the entire sum presented for payment by any attorney or law firm to the Department relating to the claim of the Department alleging the Local Agency's breach or violation, said sum being approved for payment by the Attorney General's office of the State of Illinois. For purposes of this paragraph, "costs" shall be deemed to be all those expenses, including court costs, reasonably incurred by the Department. In the event of breach of the agreement, the Department reserves the right to demand return of any state funds awarded under the agreement.

¶1) The Local Agency shall agree that the Department reserves the right to audit records relative to the agreement.

(Source: Amended at 15 Ill. Reg. 4117, effective March 4, 1991)

- 1) HEADING OF THE PART: Illinois Bicycle Path Grant Program
- 2) CODE CITATION: 17 Ill. Adm. Code 3040
- 3) SECTION NUMBERS: ADOPTED ACTION:  
3040.APPENDIX B New Section  
3040.APPENDIX C New Section  
3040.APPENDIX D New Section  
3040.APPENDIX E New Section  
3040.APPENDIX F New Section  
3040.APPENDIX G New Section
- 4) STATUTORY AUTHORITY: Implementing and authorized by Section 63a36 of the Civil Administrative Code of Illinois (Ill. Rev. Stat. 1989, ch. 127, par. 63a36) and Section 2-119 of the Illinois Vehicle Code (Ill. Rev. Stat. 1989, ch. 95 1/2, par. 2-119).
- 5) EFFECTIVE DATE OF AMENDMENTS: March 4, 1991
- 6) DOES THIS RULEMAKING CONTAIN AN AUTOMATIC REPEAL DATE? No
- 7) DO THESE AMENDMENTS CONTAIN INCORPORATIONS BY REFERENCE? No
- 8) DATE FILED IN AGENCY'S PRINCIPAL OFFICE: March 1, 1991
- 9) NOTICE OF PROPOSAL PUBLISHED IN ILLINOIS REGISTER: November 16, 1990, 14 Ill. Reg. 18380
- 10) HAS JCAR ISSUED A STATEMENT OF OBJECTIONS TO THESE RULES: No
- 11) DIFFERENCES BETWEEN PROPOSAL AND FINAL VERSION:  
In the Authority Note, "3-821" was changed to "2-119" in both places.  
The Main Source Note and Section Source Notes were updated to "15" Ill. Reg.  
In Appendix B, III, B, 2, the spelling of "Capitol" was corrected.  
In Appendix C, 2, "described" was changed to "describe" and "THE" was placed in lower case letters; and in Appendix C, 5, the "S" in "qualifications" was placed in lower case letters.



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- 12) HAVE ALL THE CHANGES AGREED UPON BY THE AGENCY AND JCAR BEEN MADE AS INDICATED IN THE AGREEMENT LETTER ISSUED BY JCAR? Yes
- 13) WILL THESE AMENDMENTS REPLACE AN EMERGENCY RULE (AMENDMENT, REPEALER) CURRENTLY IN EFFECT? NO
- 14) ARE THERE ANY AMENDMENTS PENDING ON THIS PART? No
- 15) SUMMARY AND PURPOSE OF AMENDMENTS: When this Part was initially adopted the Joint Committee on Administrative Rules recommended that the Department promulgate additional rulemaking to include appendices in this Part. These appendices are Department Bicycle Path grant application forms and are included to further clarify the rulemaking.
- 16) INFORMATION AND QUESTIONS REGARDING THESE ADOPTED AMENDMENTS SHALL BE DIRECTED TO:

Jack Price  
Department of Conservation  
524 S. Second Street, Room 485  
Springfield, IL 62701-1787

THE FULL TEXT OF THE ADOPTED AMENDMENTS BEGINS ON THE NEXT PAGE:

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TITLE 17: CONSERVATION  
CHAPTER I: DEPARTMENT OF CONSERVATION  
SUBCHAPTER 9: GRANTS

PART 3040  
ILLINOIS BICYCLE PATH GRANT PROGRAM

Section  
3040.10  
3040.20  
3040.30  
3040.40  
3040.50  
3040.60  
3040.70  
3040.80  
APPENDIX A  
APPENDIX B  
APPENDIX C  
APPENDIX D  
APPENDIX E  
APPENDIX F  
APPENDIX G

Program Objectives  
Eligibility Requirements  
Assistance Formula  
General Procedures for Grant Applications and Awards  
Eligible Project Costs  
Project Evaluation Priorities  
Program Compliance Requirements  
Program Information/Contact  
Project Evaluation Criteria  
Application Form  
Acquisition Data  
Development Data  
Narrative Statement and Environmental Evaluation  
Certification Statement  
Application for Federal/State Assistance

AUTHORITY: Implementing and authorized by Section 63a36 of the Civil Administrative Code of Illinois (Ill. Rev. Stat. 1989, ch. 127, par. 63a36) and Section 2-119 of the Illinois Vehicle Code (Ill. Rev. Stat. 1989, ch. 95 1/2, par. 2-119).

SOURCE: Adopted at 14 Ill. Reg. 6106, effective April 17, 1990; amended at 15 Ill. Reg. <sup>4132</sup>, effective March 4, 1991.



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Section 3040.APPENDIX B Application Form

I. GENERAL INFORMATION

- A. Project Sponsor: \_\_\_\_\_ (applicant)
- B. Project Title: \_\_\_\_\_
- C. Project Location: \_\_\_\_\_ (county) \_\_\_\_\_ (township)
- D. Applicant's Name, Address and Telephone Number: \_\_\_\_\_

E. Applicant's Designated Contact Person: Name, Title, Address and Telephone Number (must be available 8 a.m. to 5 p.m., Monday - Friday): \_\_\_\_\_

F. Brief and Concise Description of Proposed Project (be sure to specify # of miles of trail): \_\_\_\_\_

G. Type of Project: \_\_\_\_\_  
 [ ] Acquisition [ ] Development [ ] Development involving land donation

H. Estimated Project Costs:  
 Acquisition Costs, including appraisals (complete & attach BP/DOC-2) \$ \_\_\_\_\_  
 Relocation Costs, if applicable \_\_\_\_\_

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(maximum \$15,000) \$ \_\_\_\_\_

Development Costs (complete & attach BP/DOC-3) \$ \_\_\_\_\_

TOTAL PROJECT COSTS \$ \_\_\_\_\_

GRANT FUNDS REQUESTED\* \$ \_\_\_\_\_ (\*up to 50% maximum)

I. Source(s) of Local Matching Funds:

- [ ] General Funds [ ] Referendum Bonds  
 [ ] Non-Referendum Bonds [ ]  
 [ ] Donations: (specify): \_\_\_\_\_  
 [ ] Other Federal or State Funds (specify below)  
 [ ] Other (specify): \_\_\_\_\_

J. Population within Applicant's Jurisdiction: \_\_\_\_\_

K. Illinois Legislative (Senate) District: # \_\_\_\_\_  
 Illinois Representative District: # \_\_\_\_\_

L. Applicant's Federal Employer Identification Number (FEIN): \_\_\_\_\_

M. List any other State or Federal Grant Programs/Funds involved in the proposed project, previous or anticipated (list applicable project numbers and status): \_\_\_\_\_

If none, check box [ ]

N. Amount of other long-distance bicycle trails located within applicant's jurisdictional boundaries or which directly link, or have potential to link, with the proposed project trail. (see also Attachment #1 - Project Maps) \_\_\_\_\_ miles

O. Will the project trail or ROW also be available for:

- equestrian use? [ ] yes [ ] no  
 Snowmobile use? [ ] yes [ ] no  
 ATV use? [ ] yes [ ] no



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P. Provide a brief Narrative Statement and Environmental Evaluation (PB/DOC-4) of the project.

Q. Provide copy of local, regional or State Trail/Recreation Plan and/or excerpt(s) or reference(s) from such plan(s) which justifies/identifies the proposed project as a priority.

## II. PROJECT MAPS (no larger than 11" x 17")

Attachment #1 = Attach a county, township or city map showing the location and extent of the project trail. On the same map, also indicate the location of, or link with, other bicycle trails in the immediate area.

Attachment #2 = Attach a detailed Plat Map of the project trail ROW/property indicating dimensions and existing location of utility/road easements, etc.

Attachment #3 = Attach a Site Development Plan for the project trail.

## III. COMPLIANCE CERTIFICATION STATEMENT AND REQUIRED SIGN-OFF STATEMENTS

A. Complete and attach the Project Certification Statement (BP/DOC-5 form)

B. Complete Standard Form 424 (Application for Federal/State Assistance - parts 2, 5, 6, 7 and 11-18) and submit copy of form along with Narrative Statement (Item P) and project maps to:

1. State Historic Preservation Agency  
214 S. Sixth Street  
Springfield, IL 62701  
Telephone: 217/785-4993

2. State and Areawide Clearinghouse

Illinois State Clearinghouse  
Office of the Governor  
Room 202 State Capitol  
Springfield, IL 62706

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Telephone: 217/782-1671

### Areawide Clearinghouses

Area #1: McHenry, Lake, Kane, DuPage, Cook and Will Counties

Northeastern Illinois Planning Commission  
400 West Madison  
Chicago, IL 60606  
Telephone: 312/454-0400

Area #2: Rock Island, Henry and Mercer Counties  
Bi-State Metropolitan Planning Commission  
1504 Third Avenue  
Rock Island, IL 61201  
Telephone: 308-793-6300

Area #3: Bureau, Stark, Marshall and Putnam Counties

North Central Illinois Council  
of Governments  
P.O. Box 206  
Princeton, IL 61356  
Telephone: 815/875-3396

Area #4: Kankakee County

Kankakee County Regional Planning  
Commission  
470 East Merchant  
Kankakee, IL 60901  
Telephone: 815/937-2940

Area #5: Henderson, Warren, Hancock and McDonough Counties

Western Illinois Regional Council  
223 South Randolph  
Macomb, IL 61455  
Telephone: 309/837-3941

Area #6: Peoria, Woodford and Tazewell Counties

Tri-County Regional Planning Commission  
P.O. Box 2200



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East Peoria, IL 61611  
Telephone: 309/694-4391

## Area #7: McLean County

McLean County Regional Planning Commission  
207 West Jefferson Street, Suite 201  
Bloomington, IL 61701  
Telephone: 309/828-4331

## Area #8: Champaign County

Champaign County Regional Planning  
Commission  
1303 North Cunningham  
Urbana, IL 61801  
Telephone: 217/328-3313

## Area #9: Adams, Schuyler, Brown and Pike Counties

Two Rivers Regional Council of Public  
Officials  
Franklin Square  
Fourth and State Streets  
Quincy, IL 62301  
Telephone: 217/224-8171

## Area #10: Sangamon County

Springfield-Sangamon County Regional  
Planning Commission  
703 Myers Building  
#1 West Old State Capitol Plaza  
Springfield, IL 62701  
Telephone: 217/525-2132

## Area #11: Macon County

Macon County Regional Planning Commission  
253 East Wood Street  
Decatur, IL 62523  
Telephone: 217/423-6342

Area #12: Calhoun, Greene, Jersey, Macoupin,  
Montgomery and Christian Counties

West Central Illinois Valley Regional  
Planning Commission

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P.O. Box 387  
116 South Plum  
Carlinville, IL 62626  
Telephone: 217/854-9642

## Area #13: Madison, Monroe and St. Clair Counties

East-West Gateway Coordinating  
Council  
911 Washington Avenue  
St. Louis, Missouri 63101  
Telephone: 314/421-4220

## Area #14: Bond, Clinton and Washington Counties

S.W. Illinois Metropolitan and  
Regional Planning Commission  
203 West Main Street  
Collinsville, IL 62234  
Telephone: 618/344-4250

## Area #15: Fayette, Effingham and Marion Counties

South Central Illinois Regional  
Planning and Development Commission  
Marion County Public Service Building  
200 East Schwartz  
Salem, IL 62881  
Telephone: 618/548-4234

Area #16: Perry, Jefferson, Franklin, Jackson and  
Williamson Counties

Greater Egypt Regional Planning and  
Development Commission  
P.O. Box 3160  
Carbondale, IL 62901  
Telephone: 618/549-3306

## Area #17: Wayne, Edwards and White Counties

Greater Wabash Regional Planning  
Commission  
P.O. Box 153  
Albion, IL 62806  
Telephone: 618-896-5372

## Area #18: Hamilton, Saline, Gallatin, Pope and







## Section 3040.APPENDIX D Development Data

**Protect Sponsor:**

**Project Title:** \_\_\_\_\_

1. (Estimated Project Development Costs)

Develop.	Item	Quantity	Cost Est.	Constr. Method (see below)
----------	------	----------	-----------	-------------------------------

[illegible]

C - Bid Contract  
FA - Force Acct. Labor  
DM - Donated Material  
DL - Donated Labor  
O - Other

2. If applicable, identify architectural/engineering firm to be used in completing project.

**3. As applicable, attach copy of deed showing proof of ownership or copy of lease agreement. (If deed is Quit Claim Deed, Title Insurance is required)**

(Source: Added at 15 Ill. Reg. 4132, effective March 4, 1991)

## Section 3040.APPENDIX E

### Evaluation

### Narrative Statement and Environmental

**Narrative Statement**

**Instructions:** Describe, at a minimum, the overall concept of the project, project funding, agencies involved, approach to implementation, project location, bicycle trail mileage to be provided under the project, need for the project, and anticipated benefits.

## Environmental Evaluation

**Instructions:** Describe the existing characteristic of the project site covering, at a minimum, the items listed below and the anticipated environmental and social impacts (both positive and negative) the proposed project will have on them.

- (1) description of land being used for the proposed project and adjacent land uses paying particular attention to State significant natural areas, cultural/historic resources endangered/threatened species and habitats, etc.;
- (2) wildlife populations and habitat conditions;
- (3) general vegetation characteristics;
- (4) hydrologic characteristics; and
- (5) traffic conditions on roads/streets used or crossed by the proposed projects.

NOTE: The assessment should be an objective discussion of impacts paying particular attention to safety factors, recreational user conflicts, adjacent property owner conflicts; and describing mitigating measures which can be implemented to lessen negative impacts.

(attach additional pages as needed)

(Source: Added at 15 Ill. Reg. 4132, effective March 4, 1991)







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d. Signature of Authorized Representative:  
e. Date Signed:

11. Description of Applicant's Project:

12. Areas Affected by Project (cities, counties, states, etc.):

13. Proposed Project:

Start Date:

Ending Date:

14. Congressional Districts of:

a. Applicant

b. Project

15. Estimated Funding:

a. Federal

b. Applicant

c. State

d. Local

e. Other

f. Program Income

g. TOTAL

\$ .00  
\$ .00  
\$ .00  
\$ .00  
\$ .00  
\$ .00  
\$ .00

16. Is Application Subject to Review by State Executive Order 12372 Process?

a. Yes. This Preapplication/Application Was Made Available to the State Executive Order 12372 Process for Review On:

Date:

b. No. ☐ Program is Not Covered by E.O. 12372  
☐ Or Program Has Not Been Selected By State for Review

17. Is the Applicant Delinquent on Any Federal Debt?

☐ Yes. If "Yes" attach an explanation.  
☐ No

18. To the Best of My Knowledge and Belief, All Data in This Application/Preapplication are true and correct, the Document Has Been Duly Authorized by the Governing Body of the Applicant and the Applicant Will Comply With the Attached Assurances if the Assistance is Awarded.

a. Typed Name of Authorized Representative:

b. Title:

c. Telephone Number:

(Source: Added at 15 Ill. Reg. 4132, effective March 4, 1991)



**Jack Price**  
Department of Conservation  
524 S. Second Street, Room 485  
Springfield, IL 62701-1787

**THE FULL TEXT OF THE ADOPTED RULES BEGINS ON THE NEXT PAGE:**



## DEPARTMENT OF CONSERVATION

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TITLE 17: CONSERVATION  
CHAPTER 1: DEPARTMENT OF CONSERVATION  
SUBCHAPTER b: FISH AND WILDLIFEPART 525  
NUISANCE WILDLIFE CONTROL PERMITS

## Section

525.10 Purpose

525.20 Requirements and Application

525.30 General Provisions

525.40 Revocation and Suspension of Permits - Hearings and Appeals

525.EXHIBIT A Application for Nuisance Wildlife Control Permit

AUTHORITY: Implementing and authorized by Section 2.37 of the Wildlife Code (Ill. Rev. Stat., 1989, ch. 61, par. 2.37).

SOURCE: Adopted at 15 Ill. Reg. 4149, effective March 4, 1991.

## Section 525.10

## Purpose

This Part has been established to govern the taking, possession, transport, and disposition of Protected Species as defined by Section 2.2 of the Wildlife Code (Ill. Rev. Stat. 1989, ch. 61, par. 2.2) which are causing damage to property or a risk to human health or safety and the issuance of Nuisance Wildlife Control Permits. Drainage Districts and recipients of Nuisance Animal Removal Permits are exempt from the provisions of this Part.

## Section 525.20

## Requirements and Application

a) Any individual desiring to control Protected Species which are causing damage to property or a risk to human health or safety on the land of another, for a fee, must first obtain a valid Class A Nuisance Wildlife Control Permit from the Department. Control of white-tailed deer and migratory, threatened, or endangered species is prohibited except as provided for in Section 525.30(h).

b) Any person desiring to control Protected Species which are causing damage to property or a risk to human health or safety on the land of another, at no charge, must first obtain a valid Class B Nuisance Wildlife Control Permit from the Department. Control of white-tailed deer and migratory, threatened, or endangered species is prohibited except as provided for in Section 525.30(h).

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c) Any governmental body desiring to control Protected Species which are causing damage to property or a risk to human health or safety on the land of another must first obtain a valid Class C Nuisance Wildlife Control Permit from the Department. Control of white-tailed deer and migratory, threatened, or endangered species is prohibited except as provided for in Section 525.30(h).

d) 1) To be eligible for a Class A or Class B Nuisance Wildlife Control Permit the applicant must be at least 18 years of age.

2) Application for a Nuisance Wildlife Control Permit shall be made on forms provided by the Department's Division of Wildlife Resources and shall be obtained by submitting a request to the Division.

3) The Department shall issue a Class A Nuisance Wildlife Control Permit to an individual provided the applicant has:

A) met eligibility requirements as per this Section;

B) passed a written examination administered by the Department which tests the applicant's knowledge and understanding of:

i) this Part;

ii) the Wildlife Code (Ill. Rev. Stat., 1989, ch. 61, par. 2.37);

iii) Illinois List of Endangered and Threatened Fauna (17 Ill. Adm. Code 1010);

iv) the Illinois Dead Animal Disposal Act (Ill. Rev. Stat. 1989, ch. 8, par. 149 et seq.);

v) "Specifications for the Humane Handling, Care, Treatment, and Transportation of Warmblooded Animals Other Than Dogs, Cats, Rabbits, Hamsters, Guinea Pigs, Nonhuman Primates, and Marine Mammals" (Subpart F, Subchapter A, ch. 1, Title 9 CFR, 1985) (no later editions or amendments are



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included);

vi) Disease Free Certification and Quarantine Provisions for Propagation, Release, Importation, Exportation, and Transportation of Game Mammals, Game Birds, Migratory Birds, or Exotic Wildlife (17 Ill. Adm. Code 630); and

vii) diseases, life cycles, habits, and habitats of common Illinois wildlife.

C) completed a Hunter Safety Course administered by the Department or provided proof of equivalent training if firearms are to be used to take or euthanize animals.

4) Each new applicant or person whose permit has been revoked or has expired shall be required to answer correctly at least 80% of the questions on the closed-book examination. Applicants failing the required examination may repeat the exam after 45 days. Should a second failure occur, a six-month waiting period from the date of the second exam is required before the examination sequence can be repeated.

5) The Department shall issue a Class B Nuisance Wildlife Control Permit to an individual provided the applicant has:

- A) met eligibility requirements as per this Section;
- B) successfully completed an interview during which a representative of the Division of Wildlife Resources has determined the applicant's knowledge of wildlife and wildlife capture techniques sufficient to render services as provided for in this Section; and
- C) completed a Hunter Safety Course administered by the Department or provided proof of equivalent training if firearms are to be used to take or euthanize animals.

6) The Department shall issue a Class C Nuisance Wildlife Control Permit to a governmental body upon

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application.

e) Violation of the Illinois Endangered Species Act (Ill. Rev. Stat. 1989, ch. 8, par. 331-341), the Fish Code of 1971 (Ill. Rev. Stat. 1989, ch. 56, par. 1.1-6.4) or the Wildlife Code (Ill. Rev. Stat. 1989, ch. 1.2-517) during the 3 years prior to application for a Class A or Class B Nuisance Wildlife Control Permit shall be grounds for refusal to issue said permit.

f) Final judgement of applications shall be made by the Chief, Division of Wildlife Resources, or his designee, based on criteria contained in subsection (d).

## Section 525.30 General Provisions

a) Nuisance Wildlife Control Permits shall be issued on an annual basis and expire January 31 of each year. Nuisance Wildlife Control Permits are not transferable.

b) Under no circumstances shall a Nuisance Wildlife Control Permit be used in lieu of a scientific collector's permit or sport or commercial licenses.

c) Permittee's method of taking fauna must be approved by the Department. Approved methods include, but are not limited to trapping and shooting. In addition,

1) Only box traps, cage traps, or traps of similar design and unmodified cushion-hold traps shall be used for land sets. "Cushion-hold trap" means an approved trap of the spring-loaded type with offset jaws designed to capture an animal by closing upon one of its limbs and which is so constructed that the edges designed to touch the animal are composed of a non-metallic substance which eliminates or mitigates injury to the trapped animal.

2) Body-gripping traps, cushion-hold traps, leghold traps, Bailey beaver traps or traps of similar design, Sneed colony traps or traps of similar design, and cage traps, box traps or traps of similar design may be used for water sets. Snare devices shall be used for water sets only if at least one-half of the snare noose loop is located under water at all times; the noose loop diameter is not greater than 15 inches (38.1 CM); the snare



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is equipped with a mechanical lock, anchor swivel, and stop device to prevent the mechanical lock from closing the noose loop to a diameter of less than 2 1/2 inches (6.4 CM); the cable diameter is not less than 5/64 inch (2.0 MM) but not greater than 1/8 inch (3.2 MM); and the snare is not constructed of stainless steel metal cable or wire.

- 3) The use of traps shall be subject to all municipal restrictions unless otherwise authorized in writing by an official of the municipality.
- 4) It is unlawful to fail to visit and remove all animals from traps staked out, set, used, tended, placed or maintained at least once each calendar day.
- 5) It is unlawful for any person to place, set, use, or maintain any trap or snare that is not tagged, inscribed, or otherwise identified with the permittee's name and address.
- 6) It is unlawful for any person to place, set, use, or maintain a cushion-hold trap or leghold trap in water, that has a jaw spread larger than 7 1/2 inches (19.1 CM), or a body-gripping trap having a jaw spread larger than 10 inches (25.4 CM) on a side if square and 12 inches (30.5 CM) if round.
- 7) It is unlawful for any person to place, set, use, or maintain a cushion-hold trap on land, that has a jaw spread larger than 6 1/2 inches (16.6 CM).
- 8) It is unlawful to use any trap with saw-toothed, spiked, or toothed jaws.
- 9) It is unlawful to place, set, or maintain any leghold trap or cushion-hold trap within thirty (30) feet (9.14 m) of bait placed in such a manner or position that it is not completely covered and concealed from sight, except that this shall not apply to underwater sets. Bait shall mean and include any bait composed of mammal, bird, or fish flesh, fur, hide, entrails, or feathers.
- 10) It is unlawful to use any deadfall, pit trap, spear, gig, hook, crossbow, poison, chemical, explosive or any like device to take any Protected Species.

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- 11) It is unlawful for any person, except persons permitted by law, to have or carry any gun in or on any vehicle, conveyance or aircraft, unless such gun is unloaded and enclosed in a case.
- 12) It is unlawful to fire a rifle, pistol, revolver, or airgun on, over or into any waters of this State, including frozen waters.
- 13) It is unlawful to discharge any gun along, upon, across, or from any public right-of-way or highway in this State.
- 14) It is unlawful to use a silencer or other device to muffle or mute the sound of the explosion or report resulting from the firing of any gun.
- 15) It is unlawful for any person to remove animals from or to move or disturb in any manner, the traps owned by another person without written authorization of the owner to do so.
- 16) It is unlawful for any person to wantonly or carelessly injure or destroy, in any manner whatsoever, any real or personal property on the land of another while engaged in activities permitted by this Section.
- 17) It is unlawful for any person to take any Protected Species during the gun deer hunting season in those counties open to gun deer hunting, unless he wears, when in the field, a cap and outer garment of a solid blaze orange color, with such articles of clothing displaying a minimum of 400 square inches of blaze orange material.
- 18) The use of firearms shall be subject to all state restrictions.
- 19) The use of firearms shall be subject to municipal restrictions unless otherwise authorized in writing by an official of the municipality.
- d) Taking of fauna on private properties by Class A permittees requires the landowner's or tenant's written permission. Taking of fauna on private properties by Class B permittees requires the landowner's or tenant's



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written or oral permission.

- e) Taking of fauna on state-owned or -managed lands requires written authorization from the Site Superintendent or District Wildlife Manager.
- f) Permittees shall describe to the persons seeking services the estimated cost and type of control methods to be used to relieve the nuisance problem and/or to alleviate damage to livestock, crops, or property.
- g) The Nuisance Wildlife Control Permit must be carried on the person at all times when taking or transporting fauna and be presented, upon request, to any authorized employee of the Department or any peace officer.
- h) The taking of white-tailed deer, endangered species, threatened species, migratory birds, or other species protected by Federal regulations is prohibited unless specific authority is granted by the Department. If the permittee desires to control migratory birds or other species protected by Federal regulations, the permittee must first obtain appropriate authorization from the U.S. Fish and Wildlife Service, then receive approval from the Department prior to initiating any control methods.
- i) All fur-bearing mammals which are not listed in 17 Ill. Adm. Code 1010 and all game mammals which are not listed in 17 Ill. Adm. Code 1010 and are taken under authority of this Part must be released alive or euthanized except that striped skunks must be euthanized. All other Protected Species must be released alive or surrendered to a licensed rehabilitator.
- j) Methods of euthanizing animals must be approved by the Department and include, but are not limited to:
  - 1) captive bolt, gunshot, drowning, and stunning;
  - 2) inhalants, including ether, halothane, methoxyflurane, isoflurane, nitrous oxide, N<sub>2</sub>, carbon monoxide, and carbon dioxide; and
  - 3) non-inhalants including Secobarbital/dibucaine and T-61.
- k) All euthanized animals must be transferred to a licensed renderer or disposed of in accordance with the Illinois

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Dead Animal Disposal Act (Ill. Rev. Stat. 1989, ch. 8, par. 149 et seq.).

- l) The sale of animals or animal by-products taken under authority of this Part is prohibited.
- m) All animals released alive must be re-located into suitable habitat in the State of Illinois within 24 hours after capture. The release site must be located at least 10 but not more than 40 miles from the capture site unless the Department grants specific authority to release animals greater than 40 miles from the capture site and the animals are certified disease-free as provided for in 17 Ill. Adm. Code 630. Animals captured by duly appointed representatives of municipalities shall be re-located into suitable habitat less than 10 miles from the capture site if this rule would require the release of animals on lands under the jurisdiction of another municipality.
- n) Temporary holding facilities must meet U.S. Department of Agriculture standards for animal welfare as specified in "Specifications for the Humane Handling, Care, Treatment, and Transportation of Warmblooded Animals Other Than Dogs, Cats, Rabbits, Hamsters, Guinea Pigs, Nonhuman Primates, and Marine Mammals" (Subpart F, Subchapter A, Ch. 1, Title 9 CFR, 1985) (no later editions or amendments are included).
- o) Release of fauna onto public or private land requires written authorization from the site superintendent, tenant, or landowner. In the event that threatened or endangered species are involved, the release shall be directed by the Endangered and Threatened Species Conservation Program Coordinator, Division of Natural Heritage, Department of Conservation, 524 South Second Street, Springfield, Illinois 62701.
- p) Permittees who rent, lend or otherwise transfer traps to clients, citizens, or other parties who are not under their direct supervision and have not obtained a Nuisance Wildlife Control Permit or a Nuisance Animal Removal permit are responsible for any damages or violations of this Section that are perpetrated by the other party. Any animals taken by a second party must be reported by the permittee in accordance with subsection (g). Failure to comply with this Part shall result in permit suspension or revocation in accordance with Section



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## 525.40.

- g) All permittees shall maintain records and submit an annual report to the Department showing the following information: total number of complaints received, number of complaints serviced, county of residence, name, address, and phone number of the permittee, number and kind of animals relocated, name, address, and phone number of any site supervisor, tenant or landowner on whose property animals were released, locations where animals were released, and number and kinds of all animals euthanized. This report shall be made on or before January 20 and shall include all operations for the period from January 1 through December 31 of the previous year. All such reports and records required by this Section shall be available for inspection by any officer or authorized employee of the Department, any sheriff, deputy sheriff, or any other peace officer at any reasonable time when request is made for same. Failure to comply with the provisions of this Section shall bar the permittee from obtaining a Nuisance Wildlife Control Permit for the following year.

#### Section 525.40 Revocation and Suspension of Permits - Hearings and Appeals

In accordance with Section 3.36 of the Wildlife Code (Ill. Rev. Stat. 1989, ch. 61, par. 3.36), failure to comply with the provisions of the Nuisance Wildlife Control Permit, Wildlife Codes of Illinois pertaining to Nuisance Wildlife Control Permits, and this Part or providing false information to obtain a Nuisance Wildlife Control Permit shall result in suspension or revocation of the Nuisance Wildlife Control Permit. Suspension of the Nuisance Wildlife Control Permit shall be for a period of not less than one year. Upon receiving three or more complaints about services rendered by a permittee, the Department shall review allegations and shall immediately suspend the permit of said person for a period not to exceed 90 days pending an investigation. The procedure by which suspensions and revocations are made, the rights of permittees to notice and hearing, and the procedures governing such hearings are set forth in 17 Ill. Adm. Code 2530.

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#### SECTION 525. EXHIBIT A APPLICATION FOR NUISANCE WILDLIFE CONTROL PERMIT

## Part 1. Personal Data

Name \_\_\_\_\_  
 Address \_\_\_\_\_  
 First \_\_\_\_\_ Middle \_\_\_\_\_ Initial \_\_\_\_\_ Last \_\_\_\_\_  
 Street \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_  
 Area Code \_\_\_\_\_ Number \_\_\_\_\_  
 Phone \_\_\_\_\_  
 Date of Birth \_\_\_\_\_ Month \_\_\_\_\_ Day \_\_\_\_\_ Year \_\_\_\_\_

## Part 2. Type of permit applied for (check one):

\_\_\_\_\_ Class A (Commercial)  
 \_\_\_\_\_ Class B (Volunteer)  
 \_\_\_\_\_ Class C (Governmental Bodies Only)

## Part 3. Work Area (Applicants for Class A and B Permits only)

A list of permittees is distributed to District Wildlife Biologists and Conservation Police Officers so that they can refer complainants to permittees who service that area. Please list (in order of preference) up to four counties that you service. This list will be used strictly for referrals; your activities are not restricted to this area.

County 1 \_\_\_\_\_  
 County 2 \_\_\_\_\_  
 County 3 \_\_\_\_\_  
 County 4 \_\_\_\_\_

I certify that all information provided on this application is true and correct, to the best of my knowledge.

\_\_\_\_\_  
 Applicant's Signature

## RETURN COMPLETED APPLICATIONS TO:

Illinois Department of Conservation  
 Division of Wildlife Resources  
 Lincoln Tower Plaza  
 524 South Second Street  
 Springfield, IL 62706



## DEPARTMENT OF CONSERVATION

## NOTICE OF ADOPTED AMENDMENTS

1) HEADING OF THE PART: The Taking of Wild Turkeys - Spring Season

2) CODE CITATION: 17 Ill. Adm. Code 710

3) SECTION NUMBERS:

710.10  
710.20  
710.30  
710.50  
710.60

ADOPTED ACTION:

Amendments  
Amendments  
Amendments  
Amendments

4) STATUTORY AUTHORITY: Implementing and authorized by Sections 1.3, 1.4, 1.20, and 2.9 of the Wildlife Code (Ill. Rev. Stat. 1989, ch. 61, pars. 1.3, 1.4, 1.20, and 2.9), and Sections 2.10 and 2.11 of the Wildlife Code (Ill. Rev. Stat. 1989, ch. 61, pars. 2.10 and 2.11).

5) EFFECTIVE DATE OF AMENDMENTS: March 4, 1991

6) DOES THIS RULEMAKING CONTAIN AN AUTOMATIC REPEAL DATE? No

7) DO THESE AMENDMENTS CONTAIN INCORPORATIONS BY REFERENCE? No

8) DATE FILED IN AGENCY'S PRINCIPAL OFFICE: March 1, 1991

9) NOTICE OF PROPOSAL PUBLISHED IN ILLINOIS REGISTER: November 16, 1990, 14 Ill. Reg. 18409

10) HAS JCAR ISSUED A STATEMENT OF OBJECTIONS TO THESE RULES: No

11) DIFFERENCES BETWEEN PROPOSAL AND FINAL VERSION:

The Main Source Note and Section source notes were updated to "15" Ill. Reg.

In Section 710.50(a), a new site, "Amax Leased Lands" was added.

In Section 710.50(b), following "Kaskaskia River", duplicate language "south of Highway 154 only." was removed

In Section 710.50(c), a new site "Argyle Lake State Park - quota 3" was added.

12) HAVE ALL THE CHANGES AGREED UPON BY THE AGENCY AND JCAR BEEN MADE AS INDICATED IN THE AGREEMENT LETTER ISSUED BY JCAR? Yes

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13) WILL THESE AMENDMENTS REPLACE AN EMERGENCY RULE (AMENDMENT, REPEALER) CURRENTLY IN EFFECT? No

14) ARE THERE ANY AMENDMENTS PENDING ON THIS PART? No

15) SUMMARY AND PURPOSE OF AMENDMENTS: These amendments update season dates for the 1991 season, change county permit quotas and open two new counties to hunting.

16) INFORMATION AND QUESTIONS REGARDING THESE ADOPTED AMENDMENTS SHALL BE DIRECTED TO:

Jack Price  
Department of Conservation  
524 S. Second Street, Room 485  
Springfield, IL 62701-1787

THE FULL TEXT OF THE ADOPTED AMENDMENTS BEGINS ON THE NEXT PAGE:



## DEPARTMENT OF CONSERVATION

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TITLE 17: CONSERVATION  
CHAPTER I: DEPARTMENT OF CONSERVATION  
SUBCHAPTER b: FISH AND WILDLIFE

## PART 710

## THE TAKING OF WILD TURKEYS - SPRING SEASON

## Section

710.10 Hunting Seasons and Permit Quotas

710.20 Turkey Permit Requirements

710.30 Turkey Hunting Regulations

710.40 Other Regulations (Repealed)

710.50 Regulations at Various Department Owned or Managed Sites

710.60 Releasing or Stocking of Turkeys

AUTHORITY: Implementing and authorized by Sections 1.3, 1.4, 1.20, and 2.9 of the Wildlife Code (Ill. Rev. Stat. 1989, ch. 61, pars. 1.3, 1.4, 1.20, and 2.9), and Sections 2.10 and 2.11 of the Wildlife Code (Ill. Rev. Stat. 1989, ch. 61, pars. 2.10 and 2.11).

SOURCE: Adopted at 4 Ill. Reg. 15, p. 153, effective April 1, 1980; codified at 5 Ill. Reg. 10643; amended at 6 Ill. Reg. 3852, effective March 31, 1982; amended at 7 Ill. Reg. 4208, effective March 25, 1983; amended at 8 Ill. Reg. 5663, effective April 16, 1984, amended at 9 Ill. Reg. 6200, effective April 24, 1985; amended at 10 Ill. Reg. 6848, effective April 4, 1986; amended at 11 Ill. Reg. 2267, effective January 20, 1987; amended at 12 Ill. Reg. 5342, effective March 8, 1988; amended at 13 Ill. Reg. 5090, effective April 4, 1989; amended at 14 Ill. Reg. 663, effective January 2, 1990; amended at 15 Ill. Reg. 4161, effective

March 4, 1991

## Section 710.10 Hunting Seasons and Permit Quotas

## a) Season Dates:

1st Season: Monday, April ~~98~~ - Friday, April ~~12~~, 19901991.2nd Season: Saturday, April ~~13~~ - Friday, April ~~19~~, 19901991.3rd Season: Saturday, April ~~20~~ - Wednesday, May ~~21~~, 19901991.

## b) Open Counties and Permit Quotas:

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COUNTIES NUMBER OF PERMITS  
PER SEASON

Adams	200300
Alexander	170
Brown	175
Calhoun	150
Carroll	150200
Cass	5075
Clay	50
Effingham	5075
Fayette	150
Fulton	120
Gallatin-Hardin	250260
Greene	120
Hancock	140
Henderson	6080
Jackson	310
Jersey	100200
Jo Daviess	350400
Johnson	75
Macoupin	90
Marion	70100
Marshall-Putnam	60
McDonough	80
Monroe	110150
Ogle	50
Pike	300350
Pope	420
Randolph	125150
Saline	80
Schuyler	275300
Union	330
Washington	60
Williamson	85

(Source: Amended at 15 Ill. Reg. 4161, effective March 4, 1991)

## Section 710.20 Turkey Permit Requirements

## a)

To take, or attempt to take, a wild turkey, Illinois residents must first obtain a "Wild Turkey Hunting Permit" from the Department of Conservation for a fee of \$15.00. Non-resident turkey hunters shall be charged the same fee for wild turkey hunting permits as that charged residents of Illinois by the state



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in which the applicant resides, except that in no case shall the fee be less than \$30.00. If the state in which the applicant resides does not provide for turkey hunting by Illinois residents, then the fee shall be \$75.00. Non-residents are also required to obtain a Non-Resident Hunting License before hunting wild turkeys. Residents, except those exempted by Section 3.1 of the Wildlife Code (Ill. Rev. Stat. 1987, ch. 61, par. 3.1) are also required to obtain a hunting license before hunting wild turkey. Permits are issued for a specific county or area and are valid only in the county or area designated on the permit. Applications for wild turkey permits must be mailed to:

Department of Conservation - Turkey  
524 S. Second Street, Room 210  
P. O. Box 19446  
Springfield, Illinois 62794-9446

- b) Applicants must complete all portions of the permit application form. Incomplete applications will be rejected and fees returned. Each applicant must submit a personal check or money order for his/her individual application. Not more than 4 applications may be submitted for group hunters. Applicants submitting applications within three weeks of the season will not be guaranteed receipt of permit by start of season.

- c) Applications will be accepted January 2 through January 11. Applications received in the permit office after close of business on January 11, except for those postmarked before January 12, will be returned and will not be included in the computerized drawing. All requests must be on an official application form. Permits are not transferable and refunds will not be granted. Permits will be allocated in a computerized drawing to be held in Springfield in which the first choice of seasons will be allocated before the second or third choices are considered.

- d) Permits not issued during the computerized drawing will be available in a random daily drawing beginning February 19. All hunters not receiving a permit in the computerized drawing may apply at this time for the available permits.

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- e) Any permits not issued as of the second Monday in March will also be available in a random daily drawing to those hunters who have previously received one permit.

- f) Landowners or tenants of 40 acres or more land and members of their immediate family may apply for one free turkey permit for their property only in counties open for turkey hunting. A tenant for the purpose of this part is one who rents 40 acres or more land for commercial agricultural purposes under an agreement with a landowner. Commercial agriculture shall be defined as utilization of land for the raising of hay, grain crops or livestock for profit. All landowners or tenants that do not reside on the property must possess a valid hunting license.

- g) Landowners, or tenants are not required to participate in the public drawing for permits and are not counted toward the total number of permits issued for a particular county. Landowner/tenant permits are valid for the entire 24 days encompassed by the 3 seasons, but allow the taking of only one wild turkey.

- 1) The immediate family is limited to the spouse, children, and parents permanently residing on the same property as the landowner or tenant.

- 2) Proof of ownership for all free landowner or tenant applications must be provided by one of the following methods:

- A) Submittal of a copy of property deed;  
B) Submittal of a copy of contract for deed;  
C) Submittal of copy of most recent real estate tax statement upon which landowner's name appears: ~~(if name on tax statement is different from name of landowner, proof of purchase agreement must be submitted.)~~

- D) Submittal of a copy of either an Agricultural Stabilization and Conservation Service Form 476 or



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Commodity Credit Corporation Form 477;  
or

E) Submittal of a copy of a trust agreement  
which must indicate that the trust owns  
at least 40 acres and the applicant is  
a beneficiary of the trust.

based on ownership of lands by corporations. Lands leased to corporations shall not be considered as a basis for a free permit for the shareholders of the lessee. Lands held in trust by corporations shall not be considered as a basis for a free permit by the shareholders of the trustee. If application is made for a free permit based upon lands owned by the corporation, a duly authorized officer of the corporation must sign a notarized statement authorizing the applicant to hunt on the corporate lands for which a permit is being requested. This statement must identify the applicant is a shareholder, identify authorization to hunt and identify that no more than 15 authorizations will be requested per county for the corporation lands. This document must be attached to the application upon submittal to the Permit Office.

3) If you are applying for a tenant permit, you are required to submit, in addition to the landowner certification and proof of ownership, a copy of one of the following:

A) A copy of Internal Revenue Service  
Schedule F-1996 Submittal of a copy of a  
lease (not a hunting rights lease) or  
rental agreement, file stamped as  
recorded by the county desk, covering the  
current year; or

B) Any document showing participation in Set  
Aside or Agricultural Conservation  
Programs (ACP) such as a farm Submittal  
of a copy of either an Agricultural  
Stabilization and Conservation Service  
Form 4767 or Commodity Credit Corporation  
Form 477 or Agricultural Conservation  
Programs-245.

4) A hunting rights lease, or other non-agricultural lease, is not valid for a landowner or tenant permit.

5) If the property is owned or rented by more than one person: Only one landowner (and his immediate family) or one tenant (and his immediate family) will be issued a permit for every 40 acres of owned or rented land.

6) For example, if 3 persons own 90 acres, only 2 of the landowners and their immediate family may receive turkey permits.

7) Shareholders of corporations owning 40 or more acres of land in a county may apply for a free permit to hunt the corporation lands only. Only one permit per 40 acres, for a maximum number of 15 permits per county shall be issued

8) Landowners or tenants who obtain a free permit to hunt their owned or leased property may apply for a second county-wide permit (\$15.00 fee) from any permits not issued as of the second Monday in March in a random daily drawing.

h) A \$3.00 service fee will be charged for replacement permits issued by the Department.

i) It shall be unlawful to:

1) Submit applications before the second Monday in March for receiving more than one permit for the same person, and thereafter, submittal of applications for receiving more than two permits for the same person.

2) Provide false and/or deceptive information on a permit application form. In addition to criminal charges, individuals found guilty of violating this section shall have their application rejected, permit revoked, and fees forfeited.

(Source: Amended at 15 Ill. Reg. 4161, effective March 4, 1991)



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## Section 710.30 Turkey Hunting Regulations

It is unlawful:

- a) to use live turkey decoys, recorded calls, dogs, or bait;
- b) to take any wild turkey except a gobbler (male), or a hen with a visible beard;
- c) to take, or attempt to take, more than two wild turkey during the spring season, one must have a valid permit for each turkey that is taken;
- d) to use any weapon except a shotgun or bow and arrow. #4 shot is the largest and #7 1/2 is the smallest size shot that may be legally used. Archers may use a long, recurved, or compound bow with a minimum pull of 40 pounds at some point within a 28-inch draw; a barbed broadhead hunting arrow is the only legal arrow. Any mechanical device capable of maintaining a drawn position or partially drawn position on a bow is illegal;
- e) to hunt except from 1/2 hour before sunrise to noon during each day of the season;
- f) for any person having taken the legal limit of wild turkey(s) to further participate with a weapon in any hunting party for the purpose of taking additional wild turkeys;
- g) for any person to hunt wild turkeys without having a signed Wild Turkey Hunting Permit in possession;
- h) to transport a wild turkey without first affixing the adhesive-backed turkey permit securely around the leg. Leg tag must be affixed to the turkey immediately upon taking possession. The wild turkey shall be taken whole (not field dressed) to the designated check station for the county in which it was killed, or the closest check station, by 2:00 P.M. the same day it was killed. It will be checked, tagged and recorded by the Department at the check station.
- i) For any person to shoot a wild turkey while it is in

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a tree before 7:00 a.m.

- j) For any person to use a turkey call or to attempt to call a turkey while in the field from April 1 through the day before turkey season in counties open to turkey hunting.

(Source: Amended at 15 Ill. Reg. 4161, effective March 4, 1991)

### Section 710.50 Regulations at Various Department Owned or Managed Sites

- a) Statewide regulations shall apply for the following sites:

#### Amex Leased Lands

Carlyle Lake Wildlife Management Area

LaRue Scatters

Mark Twain N.W.R., Gardner Division

Mississippi River Pool #18 (Henderson County)

Oakwood Bottoms

Panther Creek Conservation Area

Pike County Conservation Area

Rockhouse Creek (Monroe County)

Saline County Conservation Area

- b) Statewide regulations shall apply except that all hunters must check in and out and report turkeys harvested at the check station for the following sites:

Anderson Lake Conservation Area

Fort de Chartres - muzzleloading shotgun or archery only.

Giant City State Park - hunting allowed only in designated zones.



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Kaskaskia River State Fish and Wildlife Area - south of Highway 154 only.

Pere Marquette State Park - designated open zone in southeast portion of the Park only.

Trail of Tears State Forest

Turkey Bluffs Fish and Wildlife Area

Union County Conservation Area - Firing line management unit only.

Weinburg-King State Park - hunting allowed only in designated zones.

- c) Statewide regulations shall apply and a drawing will be held the day prior to each day's hunt to fill the area's daily hunter quota. All hunters must check in and out at the check station. Hunters will be allowed to hunt in designated zones only.

Argyle Lake State Park - quota 3

Beaver Dam State Park - quota 2 (bow hunting only)

Big River State Forest - quota 6

Castle Rock State Park - quota 4

Lowden State Park - quota 1 (drawing and check station at Castle Rock State Park)

Mississippi Palisades State Park - quota 10

Pere Marquette State Park - quota 15

Siloam Springs State Park - quota 20

Witkowsky Conservation Area - quota 7

- d) Statewide regulations shall apply except that all hunters must sign in and check out to report turkeys harvested. There will be a daily quota of hunters which will be taken on a first-come, first-served basis. Hunters will not be allowed to sign in prior

## DEPARTMENT OF CONSERVATION

## NOTICE OF ADOPTED AMENDMENTS

to 4 a.m. each day of the season.

Tapley Woods (hunter quota - 2)

- e) Statewide regulations shall apply and a drawing will be held the day prior to each of the three seasons to fill the hunter quota. All hunters must check in and out at the check station. Hunters will be allowed to hunt in designated zones only.

Ferne Clyffe State Park (quota - 2 + 2 alternates)

Stephen A. Forbes State Park - (quota 6 + 6 alternates)

Ramsey Lake State Park - (quota 6 + 6 alternates)

- f) Additional regulations may be posted at the sites when more restriction is required. These additional regulations shall include, but not be limited to, selected check stations, limited hunting hours, and designated first-come first-serve sites.

(Source: Amended at 15 Ill. Reg. 4161, effective March 4, 1991)

## Section 710.60 Releasing or Stocking of Turkeys

No person, except employees of the Department shall release any turkeys in this State at any time. Game Breeding and Shooting Preserve Areas licensed pursuant to Section 3.27 of the Wildlife Code (Ill. Rev. Stat. 1987-1989, ch. 61, par. 3.27) may release turkeys for the purpose of put-and-take hunting only. This Section encompasses all of the various subspecies of the turkey (Meleagris gallopavo), which includes our native wild turkey (Meleagris gallopavo silvestris), the domestic barnyard turkey (Meleagris gallopavo gallopavo) and all crosses between any two subspecies.

(Source: Amended at 15 Ill. Reg. 4161, effective March 4, 1991)



ILLINOIS ELECTRONIC FUND TRANSFER ADVISORY COMMITTEE  
IN CHICAGO, ILLINOIS

Pursuant to Section 15-102 of the Electronic Fund Transfer Transmission Facility Act (Ill. Rev. Stat. 1989, ch. 17, par. 1363) and Section 2.02 of the Open Meetings Act (Ill. Rev. Stat. 1989, ch. 102, par. 42.02), notice is hereby given that the Commissioner of Banks and Trust Companies has called a special meeting of the Illinois Electronic Fund Transfer Advisory Committee to convene at 1:00 p.m. on Tuesday, March 19, 1991 in the Agency's Chicago Office at 310 S. Michigan Ave, Suite 2130, Chicago, Illinois with the following agenda:

## AGENDA

- I. Roll Call.
- II. Review committee member comments on amendments to the Electronic Fund Transfer Transmission Facility Act proposed by the Illinois Commissioner of Banks and Trust Companies.
- III. Adjournment.

Interested persons who would like more information on this special meeting may contact either:

Larry J. Coleman  
Andrew J. Klein  
Commissioner of Banks and Trust Companies  
117 S. Fifth Street, Suite 100  
Springfield, Illinois 62701  
(217) 782-7966

## SECRETARY OF STATE

## NOTICE OF PUBLIC INFORMATION

Agency: Department of Insurance

**Heading of the Part: Policyholder Security Deposit Act**

Code Citation: 50 Ill. Adm. Code 918

**Section Numbers:**

Action:

<b>Section Numbers:</b>	<b>Action:</b>
918.10	Repeat
918.10	Repeat
918.10	Repeat
918.10	Repeat
918.10	Repeat
918.10	Repeat
918.10	Repeat
918. Illustration I	Repeat
918. Illustration II	Repeat
918. Illustration III	Repeat
918. Illustration IV	Repeat

Date Notice of Proposed Repealer appeared in the Illinois Register: February 22, 1991  
Reg. 2899

The above named rule was submitted to the Administrative Code Division as a Notice of Proposed Repeal. In processing for publication, the source note was inadvertently filled in with February 8, 1991 as the effective date. Since all proposed rules must go through two notice periods as required by Section 5.01 of the Illinois Administrative Procedure Act (Ill. Rev. Stat. 1989, ch. 127, par. 1005.01) before they can be adopted, the effective date is in error and should not be construed as the filing date of these rules.



## NOTICE OF PUBLIC INFORMATION

Agency: Department of Public Aid

Heading of the Part: Medical Assistance Programs

Code Citation: 89 Ill. Adm. Code 120

Section Numbers:

120.65

Action:

New Section

Date Notice of Proposed Amendment appeared in the Illinois Register: February 22, 1991 15 Ill. Reg. 2908

The above named rule was submitted to the Administrative Code Division as a Notice of Proposed Amendment. In processing for publication, the source note was inadvertently filled in with February 6, 1991 as the effective date. Since all proposed rules must go through two notice periods as required by Section 5.01 of the Illinois Administrative Procedure Act (Ill. Rev. Stat. 1989, ch. 127, par. 1005.01) before they can be adopted, the effective date is in error and should not be construed as the filing date of these rules.

## NOTICE OF PUBLIC INFORMATION

Agency: Department of Public Aid

Heading of the Part: Reimbursement for Nursing Costs for Geriatric Facilities

Code Citation: 89 Ill. Adm. Code 147

Section Numbers:

147.200

Action:

Amendment

Date Notice of Proposed Amendment appeared in the Illinois Register: February 22, 1991 15 Ill. Reg. 2919

The above named rule was submitted to the Administrative Code Division as a Notice of Proposed Amendment. In processing for publication, the source note was inadvertently filled in with February 6, 1991 as the effective date. Since all proposed rules must go through two notice periods as required by Section 5.01 of the Illinois Administrative Procedure Act (Ill. Rev. Stat. 1989, ch. 127, par. 1005.01) before they can be adopted, the effective date is in error and should not be construed as the filing date of these rules.



## SECRETARY OF STATE

## NOTICE OF PUBLIC INFORMATION

Agency: Department of Transportation

Heading of the Part: Accommodation of Utilities on Right-of-Way

Code Citation: 92 Ill. Adm. Code 530

Section Numbers:	Action:
530.10	New Section
530.20	New Section
530.30	New Section
530.40	New Section
530.50	New Section
530.60	New Section
530.100	New Section
530.110	New Section
530.120	New Section
530.130	New Section
530.140	New Section
530.150	New Section
530.200	New Section
530.210	New Section
530.220	New Section
530.225	New Section

530.440  
530.450  
530.840  
530.900  
530.II. A  
530.470  
530.480  
530.500  
530.510  
530.520  
530.530  
530.600  
530.610  
530.700  
530.710  
530.800  
530.810  
530.820

Date Notice of Proposed Repealer and Notice of Proposed Rules appeared in the Illinois Register:  
February 22, 1991 15 Ill. Reg. 2940

The above named rule was submitted to the Administrative Code Division as a Notice of Proposed Rule. In processing for publication, the source note was inadvertently filled in with February 11, 1991 as the effective date. Since all proposed rules must go through two notice periods as required by Section 5.01 of the Illinois Administrative Procedure Act (Ill. Rev. Stat. 1989, ch. 127, par. 1005.01) before they can be adopted, the effective date is in error and should not be construed as the filing date of these rules.

JOINT COMMITTEE ON ADMINISTRATIVE RULES  
ILLINOIS GENERAL ASSEMBLY

## SECOND NOTICES RECEIVED

The following second notices were received by the Joint Committee on Administrative Rules during the week of February 25, 1991 through March 1, 1991, and have been scheduled for review by the Committee at its March, 1991 meeting. Other items not contained in this published list may also be considered by the Joint Committee at its March meeting. Members of the public wishing to express their views with respect to a proposed rule should submit written comments to the Joint Committee at the following address: Joint Committee on Administrative Rules, 509 South Sixth Street, Room 500, Springfield, IL 62701.

Second Notice Expires	Agency and Rule	Start of First Notice	Scheduled for Consideration by JCAR
4/12/91	Department of Public Aid, Aid to Families with Dependent Children (89 Ill. Adm. Code 112)	1/11/91 15 Ill. Reg. 157	March, 1991
4/15/91	Department of Corrections, School District #428 (20 Ill. Adm. Code 405)	1/4/91 15 Ill. Reg. 1	March, 1991
4/15/91	Department of Corrections, Records of Committed Persons (20 Ill. Adm. Code 107)	12/14/90 14 Ill. Reg. 19507	March, 1991
4/15/91	Department of Public Aid, Practice in Administrative Hearings (89 Ill. Adm. Code 104)	1/4/91 15 Ill. Reg. 15	March, 1991
4/15/91	Department of Public Aid, Medical Payment (89 Ill. Adm. Code 140.457 thru 140.459)	12/21/90 14 Ill. Reg. 20170	March, 1991
4/15/91	Department of Public Aid, Medical Assistance Programs (89 Ill. Adm. Code 120.61 thru 120.386)	1/11/91 15 Ill. Reg. 159	March, 1991
4/15/91	Department of Public Aid, Medical Assistance Programs (89 Ill. Adm. Code 120.72 and 120.74)	1/11/91 15 Ill. Reg. 159	March, 1991
4/15/91	Pollution Control Board, Definitions and General Provisions (35 Ill. Adm. Code 211)	6/1/90 14 Ill. Reg. 8463	March, 1991



JOINT COMMITTEE ON ADMINISTRATIVE RULES  
ILLINOIS GENERAL ASSEMBLYSECOND NOTICES RECEIVED  
(page 2)

Second Notice Expires	Agency and Rule	Start of First Notice	Scheduled for Consideration by JCAR
4/15/91	Illinois Commerce Commission, Telecommunications Access for the Deaf (83 Ill. Adm. Code 755)	12/7/90 14 Ill. Reg. 19109	March, 1991
4/15/91	Department of Revenue, County Retailers' Occupation Tax Regulations (86 Ill. Adm. Code 220)	12/14/90 14 Ill. Reg. 19706	March, 1991
4/15/91	Department of Revenue, County Service Occupation Tax Regulations (86 Ill. Adm. Code 230)	12/14/90 14 Ill. Reg. 19717	March, 1991
4/15/91	Department of Revenue, County Use Tax Regulations; Repeal of (86 Ill. Adm. Code 240)	12/14/90 14 Ill. Reg. 19725	March, 1991
4/15/91	Department of Revenue, Metro East Mass Transit District Retailers' Occupation Tax Regulations (86 Ill. Adm. Code 370)	12/14/90 14 Ill. Reg. 19730	March, 1991
4/15/91	Department of Revenue, Metro East Mass Transit District Service Occupation Tax Regulations (86 Ill. Adm. Code 380)	12/14/90 14 Ill. Reg. 19740	March, 1991
4/15/91	Department of Revenue, Metro East Mass Transit District Use Tax Regulations (86 Ill. Adm. Code 390)	12/14/90 14 Ill. Reg. 19746	March, 1991
4/15/91	Department of Revenue, Municipal Use Tax Regulations; Repeal of (86 Ill. Adm. Code 290)	12/14/90 14 Ill. Reg. 19751	March, 1991

JOINT COMMITTEE ON ADMINISTRATIVE RULES  
ILLINOIS GENERAL ASSEMBLYSECOND NOTICES RECEIVED  
(page 3)

Second Notice Expires	Agency and Rule	Start of First Notice	Scheduled for Consideration by JCAR
4/15/91	Department of Revenue, Regional Transportation Authority Retailers' Occupation Tax Regulations (86 Ill. Adm. Code 320)	12/14/90 14 Ill. Reg. 19756	March, 1991
4/15/91	Department of Revenue, Regional Transportation Authority Service Occupation Tax Regulations (86 Ill. Adm. Code 330)	12/14/90 14 Ill. Reg. 19767	March, 1991
4/15/91	Department of Revenue, Regional Transportation Authority Use Tax Regulations (86 Ill. Adm. Code 340)	12/14/90 14 Ill. Reg. 19774	March, 1991
4/15/91	Department of Revenue, Service Occupation Tax (86 Ill. Adm. Code 140)	12/14/90 14 Ill. Reg. 19779	March, 1991
4/15/91	Department of Revenue, Service Use Tax (86 Ill. Adm. Code 160)	12/14/90 14 Ill. Reg. 19788	March, 1991
4/15/91	Department of Revenue, Use Tax (86 Ill. Adm. Code 150)	12/14/90 14 Ill. Reg. 19804	March, 1991



## EXECUTIVE ORDER

91-5

REASSIGNMENT OF FUNCTIONS OF  
GOVERNOR'S OFFICE OF SENIOR INVOLVEMENT  
TO THE DEPARTMENT ON AGING

Article V, Section 11 of the Illinois Constitution authorizes the Governor to assign functions among executive agencies which are directly responsible to him in order to simplify the organizational structure of the Executive Branch, to improve accountability, to increase accessibility, and to achieve efficiency and effectiveness in operation;

This Executive Order Number 5 transfers all powers and duties relating to the Governor's Office of Senior Involvement to the Illinois Department on Aging. This action will consolidate and centralize the programs and services now offered to senior citizens by these two governmental bodies into the Department on Aging, resulting in more effective operation of these programs and services.

Therefore, pursuant to the power invested in me by Article V, Section 11 of the Illinois Constitution, I hereby order the following:

## I. TRANSFER OF POWERS

All rights, powers and duties vested in the Governor's Office of Senior Involvement are hereby delegated, transferred and reassigned to the Department on Aging.

## II. EFFECT OF TRANSFER

A. The Governor's Office of Senior Involvement is hereby abolished.

B. Personnel previously assigned to the Governor's Office of Senior Involvement are transferred to the Department on Aging. The rights of the employees, the State and its agencies under the Personnel Code or any collective bargaining agreement, or under any pension, retirement or annuity plan, shall not be affected by this Executive Order.

C. All books, records, papers, documents, property (real and personal), and unexpended appropriations and pending business in any way pertaining to the rights, powers and duties transferred from the Governor's Office of Senior Involvement to the Department on Aging shall be delivered and transferred to the Department on Aging.

## III. SAVINGS CLAUSE

A. The rights, powers and duties transferred by this Executive Order to the Department shall be vested in and shall be

91

exercised by the Department subject to the provisions of this Order. Each act done in the exercise of such rights, powers and duties shall have the same legal effect as if done by the former office or employees thereof.

B. Every person or corporation shall be subject to the same obligations and duties and any penalties, civil or criminal, arising therefrom, and shall have the same rights arising from the exercise of such rights, powers and duties as if such rights, powers and duties had been exercised by the former office or employees thereof.

C. Every officer and employee of the Department shall, for any offense, be subject to the same penalty or penalties, civil or criminal, as are prescribed by existing law for the same offense by any officer or employee whose powers or duties were transferred to him by this Executive Order.

D. Whenever reports or notices are now required to be made or given or papers or documents furnished or served by any person to or upon the departments and offices transferred by this Executive Order, the same shall be made, given, furnished or served in the same manner to or upon the Department.

E. This Executive Order shall not affect any act done, ratified or cancelled or any right occurring or established or any action or proceeding had or commenced in an administrative, civil or criminal cause before this Executive Order takes effect, but such actions or proceedings may be prosecuted and continued by the Department.

## IV. SEVERABILITY

If any provision of this Executive Order or its application to any person or circumstance is held invalid by any court of competent jurisdiction, this invalidity does not affect any other provision or application of this Executive Order which can be given effect without the invalid provision or application. To achieve this purpose, the provisions of this Executive Order are declared to be severable.

## V. EFFECTIVE DATE

This Executive Order shall become effective on February 28, 1991.  
Issued by the Governor February 28, 1991.  
Filed with the Secretary of State February 28, 1991.



91-6  
REASSIGNMENT OF FUNCTIONS OF  
GOVERNOR'S OFFICE OF VOLUNTARY ACTION  
TO THE LIEUTENANT GOVERNOR, SENIOR ACTION CENTERS

Article V, Section 11 of the Illinois Constitution authorizes the Governor to assign functions among executive agencies which are directly responsible to him in order to simplify the organizational structure of the Executive Branch, to improve accountability, to increase accessibility, and to achieve efficiency and effectiveness in operation;

Article V, Section 14 of the Illinois Constitution empowers the Lieutenant Governor to "perform the duties and exercise the powers in the Executive Branch that may be delegated to him by the Governor and that may be prescribed by law";

This Executive Order Number 6 delegates all powers and duties relating to the Governor's Office of Voluntary Action to the Office of the Lieutenant Governor, Senior Action Centers.

Therefore, pursuant to the power invested in me by Article V, Section 11 of the Illinois Constitution, I hereby order the following:

I. TRANSFER OF POWERS

A. All rights, powers and duties vested in the Governor's Office of Voluntary Action by Sections 1, 2, 3 and 4 of "AN ACT to create an Office of Voluntary Action within the Office of the Governor and to define its powers and duties," approved August 29, 1990 are hereby delegated to the Office of the Lieutenant Governor, Senior Action Centers.

B. All rights, powers and duties vested in the Governor in appointing members of the Voluntary Action Advisory Council by Sections 5 and 6 of "AN ACT to create an Office of Voluntary Action within the Office of the Governor and to define its powers and duties," approved August 29, 1990 are hereby delegated to the Lieutenant Governor. The Council shall advise and consent with the Lieutenant Governor in lieu of the Governor on all matters relating to voluntary actions in Illinois. The current members of the Council shall serve the remainder of their appointed terms.

II. EFFECT OF TRANSFER

A. The Governor's Office of Voluntary Action is hereby abolished.

B. All books, records, papers, documents, property (real and personal), and pending business in any way pertaining to the rights, powers and duties transferred from the Governor's Office of Voluntary Action to the Office of the Lieutenant Governor, Senior Action Centers, shall be delivered and transferred to the Office of the Lieutenant Governor, Senior Action Centers.

III. SAVINGS CLAUSE

A. The rights, powers and duties transferred by this Executive Order to the Office of the Lieutenant Governor shall be vested in and shall be exercised by the Office of the Lieutenant Governor subject to the provisions of this Order. Each act done in the exercise of such rights, powers and duties shall have the same legal effect as if done by the former office or employees thereof.

B. Every person or corporation shall be subject to the same obligations and duties and any penalties, civil or criminal, arising therefrom, and shall have the same rights arising from the exercise of such rights, powers and duties as if such rights, powers and duties had been exercised by the former office or employees thereof.

C. Every officer and employee of the Office of the Lieutenant Governor shall, for any offense, be subject to the same penalty or penalties, civil or criminal, as are prescribed by existing law for the same offense by any officer or employee whose powers or duties were transferred to him by this Executive Order.

D. Whenever reports or notices are now required to be made or given or papers or documents furnished or served by any person to or upon the departments and offices transferred by this Executive Order, the same shall be made, given, furnished or served in the same manner to or upon the Office of the Lieutenant Governor.

E. This Executive Order shall not affect any act done, ratified or cancelled or any right occurring or established or any action or proceeding had or commenced in an administrative, civil or criminal cause before this Executive Order takes effect, but such actions or proceedings may be prosecuted and continued by the Office of the Lieutenant Governor.

IV. SEVERABILITY

If any provision of the Executive Order or its application to any person or circumstance is held invalid by any court of competent jurisdiction, this invalidity does not affect any other provision or application of this Executive Order which can be given effect without the invalid provision or application. To achieve this purpose, the provisions of this Executive Order are declared to be severable.

V. EFFECTIVE DATE

This Executive Order shall become effective on February 28, 1991.  
Issued by the Governor February 28, 1991.



Filed with the Secretary of State February 28, 1991.

## PROCLAMATION

91-057

## FOREIGN LANGUAGE WEEK

Whereas, Alpha Mu Gamma was established in 1931 as the national collegiate foreign language honor society of the United States; and

Whereas, Alpha Mu Gamma was created to recognize achievement in the field of foreign language study and encourage interest in the study of foreign languages, literatures, and cultures; and

Whereas, in 1957, President Eisenhower proclaimed the observance of National Foreign Language Week and each president thereafter has recognized the observance of National Foreign Language Week;

Therefore, I, Jim Edgar, Governor of the State of Illinois, proclaim March 3-9, 1991, as FOREIGN LANGUAGE WEEK in Illinois.

Issued by the Governor February 25, 1991.

Filed with the Secretary of State March 4, 1991.

91-058

## LOGISTICS ENGINEERING WEEK

Whereas, the Society of Logistics Engineers is celebrating its 25th Anniversary; and

Whereas, all organizations engage in three basic activities: strategy, tactics, and logistics, wherein strategy defines the job, tactics does the job, and logistics provides the resources; and

Whereas, the society aims to provide improved opportunities for professional growth in the field of logistics; to define, develop, and communicate logistics techniques; to promote productive professional relationships, joint programs, and the exchange of ideas; and to recognize significant achievements in the logistics field;

Therefore, I, Jim Edgar, Governor of the State of Illinois, proclaim July 1-7, 1991, as LOGISTICS ENGINEERING WEEK in Illinois and urge citizens to be cognizant of this emerging science.

Issued by the Governor February 25, 1991.

Filed with the Secretary of State March 4, 1991.

91-059

## U.S. SAVINGS BOND CAMPAIGN MONTH

Whereas, the United States Savings Bonds Program has been making significant contributions to the well-being of Americans for 50 years by helping to build savings for the future; and

Whereas, the program has helped the economy of this state by giving our citizens an extra reserve of buying power; and



Whereas, the people of this state have shown through their purchases of savings bonds that they believe in the purposes of the program;

Therefore, I, Jim Edgar, Governor of the State of Illinois, proclaim March 1991 as U.S. SAVINGS BOND CAMPAIGN MONTH in Illinois, and I urge all citizens to help themselves, their state, and their nation by purchasing United States Savings Bond.

Issued by the Governor February 25, 1991.

Filed with the Secretary of State March 4, 1991.

## 91-060

## WARSAW GHETTO UPRISING/DAY OF MEMORIAL

Whereas, during the month of April, the Jewish community in the State of Illinois and all over the world commemorates the Warsaw Ghetto Uprising; and

Whereas, the Warsaw Ghetto Uprising lasted from April 19-May 16, 1943. Sixty-thousand Jews lost their lives in the process of resisting Nazi troops; and

Whereas, not since that period has there been such an alarming rate of anti-semitism and racist vandalism against synagogues and Jewish shops in the Chicago area and across the nation; and

Whereas, the commemoration encourages people to remember the atrocities that took place less than 50 years ago and to use those memories as the base to educate our children for a better future; and

Whereas, the remembrance of the Warsaw Ghetto Uprising helps our nation in its efforts to end racial and religious oppression and renews our commitment to faith and freedom; and

Whereas, the 48th commemoration of the Warsaw Ghetto Uprising, sponsored by the Mid-West Jewish Council, will be held Sunday, April 14, 1991, at Mather High School in Chicago; and

Whereas, citizens of many faiths will be present to pay homage to those heroic individuals who sacrificed their lives for their belief in the preservation of basic human rights;

Therefore, I, Jim Edgar, Governor of the State of Illinois, proclaim April 14, 1991, as a day of memorial of the WARSAW GHETTO UPRISING.

Issued by the Governor February 25, 1991.

Filed with the Secretary of State March 4, 1991.

## 91-061

PEACE CORPS OF THE UNITED STATES OF AMERICA/  
30TH ANNIVERSARY

Whereas, the Peace Corps of the United States of America is celebrating its 30th year of providing service in countries throughout the world to help people help themselves; and

Whereas, more than 130,000 Americans have served in the Peace

Corps in more than 100 nations around the world in programs promoting understanding between Americans and others; and

Whereas, Peace Corps volunteers are enriched by their services and are more knowledgeable of the world and the challenges of building a lasting peace; and

Whereas, Peace Corps volunteers continue to maintain open channels of communication with the people in the countries they serve; and

Whereas, the demand for the services provided by the Peace Corps continues to grow;

Therefore, I, Jim Edgar, Governor of the State of Illinois, proclaim 1991 as the 30th anniversary of the PEACE CORPS OF THE UNITED STATES OF AMERICA. I urge citizens to recognize and reflect on the achievements of the Peace Corps, honor its volunteers past and present, and reaffirm our nation's commitment to helping people throughout the world help themselves.

Issued by the Governor February 26, 1991.

Filed with the Secretary of State March 4, 1991.

## 91-062

## ARNOLD F. KARR RECOGNIZED

Whereas, Arnold F. Karr is president of the Hotel-Motel Association of Illinois (HMAI); and

Whereas, Mr. Karr served as secretary of the Greater Chicago Hotel & Motel Association in 1966 and has been associated with the hotel industry in Illinois since that time; and

Whereas, during the HMAI Annual Meeting March 1 at the Fairmont Hotel in Chicago, Mr. Karr will be recognized for 25 years of service to the Illinois hospitality and tourism industry.

Therefore, I, Jim Edgar, Governor of the State of Illinois, recognize ARNOLD F. KARR for the contributions he has made to the hotel industry.

Issued by the Governor February 27, 1991.

Filed with the Secretary of State March 4, 1991.

## 91-063

## CHRONIC FATIGUE SYNDROME AWARENESS WEEK

Whereas, Chronic Fatigue Syndrome (CFS) is a disease that devastates its victims, often leaving them in a condition of continuous, disabling fatigue; and

Whereas, the burdens are even greater for CFS sufferers, because physicians often are unfamiliar with the illness, insurance companies refuse to honor CFS-related health claims, and many compensation distributors do not honor CFS as a compensable disease, the burdens are even greater for CFS sufferers; and

Whereas, the Chronic Fatigue Syndrome Society of Illinois



strives to circulate information to the afflicted, the health care providers, and the public and to stimulate interest in finding a cure for CFS;

Therefore, I, Jim Edgar, Governor of the State of Illinois, proclaim March 3-9, 1991, as CHRONIC FATIGUE SYNDROME AWARENESS WEEK in Illinois and encourage Illinoisans to join in the fight to relieve the pain and frustration of CFS victims.

Issued by the Governor February 27, 1991.  
Filed with the Secretary of State March 4, 1991.

## 91-064

## PEORIA DESERT STORM SUPPORT DAY

Whereas, thousands of Illinoisans are protecting the right of freedom by serving as military personnel in Operation Desert Storm in the Persian Gulf; and

Whereas, citizens should make a strong effort to show their support for our brave troops; and

Whereas, American Legion Peoria Post No. 2 is sponsoring a Desert Storm Support Rally March 3 at Eckwood Park; and

Whereas, the rally will feature a presentation of the colors, patriotic songs, prayer, and a balloon release to show our troops how invaluable they are to us; and

Whereas, all motorists are asked to drive with their headlights on to show their support for our troops;

Therefore, I, Jim Edgar, Governor of the State of Illinois, proclaim March 3, 1991, as DESERT STORM SUPPORT DAY in Illinois and urge citizens to take part in activities and ceremonies designed to show support and appreciation of our troops.

Issued by the Governor February 27, 1991.  
Filed with the Secretary of State March 4, 1991.

## 91-065

## ST. DAVID'S DAY

Whereas, 1991 marks the 1,402nd anniversary of the celebration of St. David's Day. March 1st has traditionally been observed as St. David's Day in Wales and throughout the world where Welsh men and women gather; and

Whereas, the traditions and heritage of the Welsh have enriched the culture and fabric of our society, and many Welsh citizens have become leaders in government, education, business, and science; and

Whereas, at least 16 signers of the Declaration of Independence and five United States presidents were of Welsh lineage; and

Whereas, we should join them in celebrating St. David's Day to pay tribute to the patron saint of Wales and recognize the important cultural heritage of these proud Celts;

Therefore, I, Jim Edgar, Governor of the State of Illinois,

proclaim March 1, 1991, as ST. DAVID'S DAY in Illinois, in recognition of the numerous accomplishments of Welsh Americans. Issued by the Governor February 27, 1991.  
Filed with the Secretary of State March 4, 1991.

## 91-066

## EMPLOY THE OLDER WORKER WEEK

Whereas, the State of Illinois has traditionally honored older workers by observing National Employ the Older Worker Week; and

Whereas, workers age 55 and over have earned recognition and praise for their many significant contributions to business, industry, and government; and

Whereas, employers have come to depend on the skills, stability, and experience of older workers; and

Whereas, this dependency will increase in coming years as the number of older employees in the work force grows with our maturing population; and

Whereas, by hiring and supporting older workers, Illinois business, industry, and government will continue to make an "investment in excellence" that will pay off well into the future;

Therefore, I, Jim Edgar, Governor of the State of Illinois, proclaim March 10-16, 1991, as EMPLOY THE OLDER WORKER WEEK in Illinois.

Issued by the Governor February 28, 1991.

Filed with the Secretary of State March 4, 1991.

## 91-067

## IRISH-AMERICAN HERITAGE MONTH

Whereas, by 1776, nearly 300,000 natives of Ireland had emigrated to the United States; and

Whereas, the Irish and their descendants have helped enrich countless areas of life in the United States, including military and governmental service, science, education, art, agriculture, business, industry, and athletics; and

Whereas, last year, 206 community St. Patrick's Day parades honored the patron saint of Ireland; and

Whereas, President George Bush has signed legislation designating March as Irish-American Heritage Month;

Therefore, I, Jim Edgar, Governor of the State of Illinois, proclaim March 1991 as IRISH-AMERICAN HERITAGE MONTH in Illinois and encourage citizens to recognize the observance by taking part in appropriate ceremonies and activities.

Issued by the Governor February 28, 1991.

Filed with the Secretary of State March 4, 1991.



91-068

## L. RON HUBBARD DAY

Whereas, L. Ron Hubbard is one of the most acclaimed and widely read American authors and has provided solutions to the problems of drugs, crime, and illiteracy that are ravaging our communities; and

Whereas, Hubbard's works, which are printed in 28 languages and 88 countries, are being utilized by hundreds of groups around the United States to improve conditions in their cities and states; and

Whereas, Hubbard's writings on the mind and human spirit have helped millions of people lead better lives. His literacy works have enriched the lives of many readers; and

Whereas, Hubbard has solved the aberrations of the human mind and states in his book, Dianetics: The Modern Science of Mental Health, "There is no problem in the world today which cannot be solved by reason alone";

Therefore, I, Jim Edgar, Governor of the State of Illinois, proclaim March 13, 1991, as L. RON HUBBARD DAY in Illinois.

Issued by the Governor February 28, 1991.

Filed with the Secretary of State March 4, 1991.

91-069

## PATRIOTS FOR FREEDOM WEEK

Whereas, abolitionists, northern philanthropists, and free blacks, including former slaves, were instrumental in helping between 40,000 and 100,000 slaves reach freedom via the Underground Railroad; and

Whereas, the Underground Railroad network illustrates an excellent example of American character at work; and

Whereas, through organizational networking, self-determination, and aid from fellow antislavery advocates, African descendants, like other Americans, ultimately realized their full potential as human beings; and

Whereas, the persistent and courageous efforts by biracial teams of abolitionists reflected the true spirit of comradeship and a thirst for freedom, helping to provide the inspiration needed to remove the dark shadow of human bondage from the annals of American history;

Therefore, I, Jim Edgar, Governor of the State of Illinois, proclaim March 10-15, 1991, as PATRIOTS FOR FREEDOM WEEK in Illinois.

Issued by the Governor February 28, 1991.

Filed with the Secretary of State March 4, 1991.

91-070

## WATER QUALITY WEEK

Whereas, Illinois' lakes, ponds, rivers, and streams are vital for drinking water, recreation, tourism, industrial and municipal water supplies, flood control, and property value enhancement; and

Whereas, the state's water quality must be protected to ensure the health of Illinois citizens and provide economic benefits; and

Whereas, water quality protection requires the cooperation of individuals, water pollution control associations, operators of Illinois' 1,952 public water supplies, and the more than 2,400 wastewater treatment facilities, as well as local, state, and federal governments;

Therefore, I, Jim Edgar, Governor of the State of Illinois, proclaim March 11-15, 1991, as WATER QUALITY WEEK in Illinois, in recognition of the value of our water resources, the need to protect and improve Illinois' waters, and the excellent cooperation developed through the efforts of Illinois' water pollution control associations, regulatory agencies, industries, and concerned citizens.

Issued by the Governor February 28, 1991.

Filed with the Secretary of State March 4, 1991.

91-071

## FREE PAPER WEEK

Whereas, free-circulation community papers provide comprehensive buying information to consumers in the communities they serve; and

Whereas, free-circulation community papers contribute to the growth and success of their local and state economy; and

Whereas, free-circulation community papers blanket the country each week with a door-to-door circulation of more than 14 million;

Therefore, I, Jim Edgar, Governor of the State of Illinois, proclaim March 17-23, 1991, as FREE PAPER WEEK in Illinois.

Issued by the Governor March 1, 1991.

Filed with the Secretary of State March 4, 1991.

91-072

## JUSTICE HARRY A. BLACKMUN DAY

Whereas, Supreme Court Justice Harry A. Blackmun is a native of Nashville, Illinois; and

Whereas, Harry Blackmun graduated from Harvard College summa cum laude in mathematics and after receiving his law degree from Harvard Law School was admitted to the Minnesota Bar; and



Whereas, as a general partner of Dorsey, Colman, Barker, Scott, and Barker, Blackmun focused on taxation, litigation, wills, trusts, and estate planning; and

Whereas, in 1950, Justice Blackmun was appointed resident counsel of the Mayo Clinic and Mayo Association at Rochester, Minnesota, where he served for nine years until he became a United States Court of Appeals Judge; and

Whereas, he served on the 8th circuit until 1970 when he was nominated by President Nixon to become an associate justice of the United States Supreme Court; and

Whereas, Blackmun has received 28 honorary doctorates and numerous awards from universities across the nation. He has been a participant and moderator in many seminars and conferences dealing with legal subjects and human rights; and

Whereas, the Decalogue Society of Lawyers is awarding Justice Blackmun the annual Award of Merit during a special reception on March 6, 1991;

Therefore, I, Jim Edgar, Governor of the State of Illinois, proclaim March 6, 1991, as JUSTICE HARRY A. BLACKMUN DAY in Illinois, in recognition of his lifetime achievements and contributions to the betterment of mankind.

Issued by the Governor March 1, 1991.

Filed with the Secretary of State March 4, 1991.

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## ACTION CODES

ICAR - Joint Committee on Administrative Rules

A - Adopted Rule  
 AR - Adopted Repealer  
 C - Notice of Corrections  
 CC - Codification Changes  
 E - Emergency Rule  
 ER - Emergency Repealer  
 M - Modification to meet ICAR objections  
 O - ICAR Statement of Objections  
 P - Proposed Rule  
 PF - Prohibited Filing Ordered by ICAR  
 PP - Peremptory or Court ordered Rules  
 PR - Proposed Repealer  
 R - Refusal to meet ICAR objection  
 RC - Statement of Recommendation  
 S - Suspension ordered by ICAR  
 W - Withdrawal to meet ICAR objections

## EXAMPLE:

## AGRICULTURE, DEPARTMENT OF

TITLE → PART → ACTION CODE → PAGE NUMBER → ACTION CODE → PAGE NUMBER  
 8 Ill. Adm. Code 285 → III. Grain Insurance Act (P-18048/85; A-6818) →

ALL RULES ARE LISTED BY PART NUMBER AND HEADING ONLY. (FOR ACTION ON SPECIFIC SECTIONS, PLEASE REFER TO THE SECTIONS AFFECTED INDEX.) IF THERE ARE ANY QUESTIONS, PLEASE CONTACT THE ADMINISTRATIVE CODE DIVISION AT (217) 782-9786.

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The Sections Affected Index lists, by Title, each Section of a codified Part on which rulemaking activity has occurred in this volume of the Register and is divided into two parts: the first lists the Sections on which rulemaking activity occurred in the previous issues of this volume year; the second lists the Sections on which rulemaking activity occurred in this issue of the Register. (The headings at the top of each page indicate the two parts: the first part shows the previous issue numbers inclusively and the date of the last published issue; the second lists the current issue number and date.) The columns in both parts indicate the type of rulemaking activity and the action taken along with the page number on which the first page of the notice of rulemaking activity appeared. If a Section on (e.g. 1 Ill. Adm. Code 100.280) was proposed last year and adopted this year, the action entry reads: (P-8577/89; A-724). The codes for both columns are listed below. For a complete listing of the Titles of the Illinois Administrative Code, please refer to 1 Ill. Adm. Code 100.140 or contact the Administrative Code Division.

TYPE OF RULEMAKING		ACTION CODES	
am	= amendment to existing Section	A	= Adopted rule
cc	= codification changes	C	= Correction
n	= new Section	CC	= Codification Changes
r	= repeal of existing Section	E	= Emergency rule
re	= reclassified	F	= Failure to Remedy
#	= renumbered	M	= Modification
		O	= ICAR Objection
		P	= Proposed rule
		PF	= Prohibited Filing
		PP	= Peremptory rule
		R	= Refusal to Modify or Withdraw
		RC	= ICAR Recommendation
		S	= Suspended rule
		W	= Withdrawal of Proposed rule

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<b>TITLE 2</b>							
2375.110	am	(A-1571)		125.370	am	(PP-620; W-1574) (P-1583)	
2650.10	n	(A-2660)		125.380	am	(PP-620; W-1574) (P-1583)	
2650.20	n	(A-2660)				(PP-3117)	
2650.30	n	(A-2660)		125.400	am	(PP-620; W-1574) (P-1583)	
2650.40	n	(A-2660)		125.410	am	(PP-620; W-1574) (P-1583)	
2650.50	n	(A-2660)		255.50	am	(E-128)	
2650.60	n	(A-2660)		270.261	am	(P-10965/90; A-455)	
2650.100	n	(A-2660)		<b>TITLE 11</b>			
2650.200	n	(A-2660)		405.170	r	(P-8957/90; A-591)	
2650.205	n	(A-2660)		405.250	n	(P-12389/90; A-2733)	
2650.210	n	(A-2660)		433.35	am	(P-12393/90; A-2736)	
2650.220	n	(A-2660)		440.10	n	(P-8975/90; A-3492)	
2650.300	n	(A-2660)		440.20	n	(P-8975/90; A-3492)	
2650.310	n	(A-2660)		440.30	n	(P-8975/90; A-3492)	
2650.311	n	(A-2660)		440.40	n	(P-8975/90; A-3492)	
2650.312	n	(A-2660)		440.50	n	(P-8975/90; A-3492)	
2650.313	n	(A-2660)		440.60	n	(P-8975/90; A-3492)	
2650.314	n	(A-2660)		440.70	n	(P-8975/90; A-3492)	
2650.320	n	(A-2660)		440.80	n	(P-8975/90; A-3492)	
2650.330	n	(A-2660)		440.90	n	(P-8975/90; A-3492)	
2650.340	n	(A-2660)		440.100	n	(P-8975/90; A-3492)	
2650.400	n	(A-2660)		440.110	n	(P-8975/90; A-3492)	
2650.410	n	(A-2660)		440.120	n	(P-8975/90; A-3492)	
2650.11.A	n	(A-2660)		440.130	n	(P-8975/90; A-3492)	
2650.11.B	n	(A-2660)		440.140	n	(P-8975/90; A-3492)	
				440.150	n	(P-8975/90; A-3492)	
<b>TITLE 3</b>				440.150	n	(P-8975/90; A-3492)	
125.10	am	(PP-620; W-1574) (P-1583)		1312.265	am	(P-14750/90; A-2727)	
125.30	am	(PP-620; W-1574) (P-1583)		1413.48	am	(P-12385/90; A-2730)	
125.40	am	(PP-620; W-1574) (P-1583)		1424.140	n	(P-10691/90; A-20545/90; C-2044)	
125.50	am	(PP-620; W-1574) (P-1583)		1424.355	am	(P-19690/90; W-1173)	
125.60	am	(PP-620; W-1574) (P-1583)		<b>TITLE 14</b>			
125.80	am	(PP-620; W-1574) (P-1583)		510.10	am	(P-677)	
125.90	am	(PP-620; W-1574) (P-1583)		510.20	am	(P-677)	
125.100	am	(PP-620; W-1574) (P-1583)		510.40	am	(P-677)	
125.110	am	(PP-620; W-1574) (P-1583)		510.50	am	(P-677)	
125.120	am	(PP-620; W-1574) (P-1583)		510.60	am	(P-677)	
125.130	am	(PP-620; W-1574) (P-1583)		510.70	am	(P-677)	
125.140	am	(PP-620; W-1574) (P-1583)		510.80	am	(P-677)	
125.150	am	(PP-620; W-1574) (P-1583)		510.110	n	(P-13072/90; A-2673)	
125.160	am	(PP-620; W-1574) (P-1583)		510.120	n	(P-13072/90; A-2673)	
125.170	am	(PP-620; W-1574) (P-1583)		510.130	n	(P-13072/90; A-2673)	
125.180	am	(PP-620; W-1574) (P-1583)		510.140	n	(P-13072/90; A-2673)	
125.190	am	(PP-620; W-1574) (P-1583)		510.150	n	(P-13072/90; A-2673)	
125.200	am	(PP-620; W-1574) (P-1583)		510.160	n	(P-13072/90; A-2673)	
125.210	am	(PP-620; W-1574) (P-1583)		510.170	n	(P-13072/90; A-2673)	
125.220	am	(PP-620; W-1574) (P-1583)		510.175	n	(P-13072/90; A-2673)	
125.230	am	(PP-620; W-1574) (P-1583)		510.180	n	(P-13072/90; A-2673)	
125.240	am	(PP-620; W-1574) (P-1583)		510.185	n	(P-13072/90; A-2673)	
125.250	am	(PP-620; W-1574) (P-1583)		510.190	n	(P-13072/90; A-2673)	
125.260	am	(PP-620; W-1574) (P-1583)		510.195	n	(P-13072/90; A-2673)	
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125.280	am	(PP-620; W-1574) (P-1583)		510.205	n	(P-13072/90; A-2673)	
125.290	am	(PP-620; W-1574) (P-1583)		540.110	n	(P-11022/90; A-973)	
125.300	am	(PP-620; W-1574) (P-1583)		540.120	n	(P-11022/90; A-973)	
125.305	am	(PP-620; W-1574) (P-1583)		540.130	n	(P-11022/90; A-973)	
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125.320	am	(PP-620; W-1574) (P-1583)		540.150	n	(P-11022/90; A-973)	
125.330	am	(PP-620; W-1574) (P-1583)		540.160	n	(P-11022/90; A-973)	
125.340	am	(PP-620; W-1574) (P-1583)		540.170	n	(P-11022/90; A-973)	
125.350	am	(PP-620; W-1574) (P-1583)		540.180	n	(P-11022/90; A-973)	
125.360	am	(PP-620; W-1574) (P-1583)		540.190	n	(P-11022/90; A-973)	







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218.581	n	(P-3675)	219.103	n	(P-3892)	219.449	n		
218.582	n	(P-3675)	219.104	n	(P-3892)	219.450	n		
218.583	n	(P-3675)	219.105	n	(P-3892)	219.451	n		
218.584	n	(P-3675)	219.106	n	(P-3892)	219.451	n		
218.585	n	(P-3675)	219.107	n	(P-3892)	219.452	n		
218.601	n	(P-3675)	219.108	n	(P-3892)	219.453	n		
218.602	n	(P-3675)	219.109	n	(P-3892)	219.461	n		
218.603	n	(P-3675)	219.110	n	(P-3892)	219.462	n		
218.604	n	(P-3675)	219.111	n	(P-3892)	219.463	n		
218.605	n	(P-3675)	219.112	n	(P-3892)	219.464	n		
218.606	n	(P-3675)	219.121	n	(P-3892)	219.465	n		
218.607	n	(P-3675)	219.122	n	(P-3892)	219.466	n		
218.608	n	(P-3675)	219.123	n	(P-3892)	219.480	n		
218.609	n	(P-3675)	219.124	n	(P-3892)	219.481	n		
218.610	n	(P-3675)	219.125	n	(P-3892)	219.482	n		
218.611	n	(P-3675)	219.126	n	(P-3892)	219.483	n		
218.612	n	(P-3675)	219.127	n	(P-3892)	219.484	n		
218.613	n	(P-3675)	219.128	n	(P-3892)	219.485	n		
218.620	n	(P-3675)	219.141	n	(P-3892)	219.486	n		
218.621	n	(P-3675)	219.142	n	(P-3892)	219.487	n		
218.622	n	(P-3675)	219.143	n	(P-3892)	219.488	n		
218.623	n	(P-3675)	219.144	n	(P-3892)	219.489	n		
218.624	n	(P-3675)	219.181	n	(P-3892)	219.521	n		
218.625	n	(P-3675)	219.182	n	(P-3892)	219.522	n		
218.626	n	(P-3675)	219.183	n	(P-3892)	219.525	n		
218.628	n	(P-3675)	219.184	n	(P-3892)	219.527	n		
218.630	n	(P-3675)	219.185	n	(P-3892)	219.541	n		
218.636	n	(P-3675)	219.186	n	(P-3892)	219.561	n		
218.637	n	(P-3675)	219.204	n	(P-3892)	219.562	n		
218.875	n	(P-3675)	219.205	n	(P-3892)	219.563	n		
218.877	n	(P-3675)	219.206	n	(P-3892)	219.581	n		
218.879	n	(P-3675)	219.207	n	(P-3892)	219.582	n		
218.881	n	(P-3675)	219.208	n	(P-3892)	219.583	n		
218.883	n	(P-3675)	219.209	n	(P-3892)	219.584	n		
218.886	n	(P-3675)	219.210	n	(P-3892)	219.585	n		
218.920	n	(P-3675)	219.211	n	(P-3892)	219.601	n		
218.923	n	(P-3675)	219.301	n	(P-3892)	219.602	n		
218.926	n	(P-3675)	219.302	n	(P-3892)	219.603	n		
218.927	n	(P-3675)	219.303	n	(P-3892)	219.604	n		
218.928	n	(P-3675)	219.304	n	(P-3892)	219.605	n		
218.940	n	(P-3675)	219.401	n	(P-3892)	219.606	n		
218.943	n	(P-3675)	219.402	n	(P-3892)	219.607	n		
218.946	n	(P-3675)	219.403	n	(P-3892)	219.608	n		
218.947	n	(P-3675)	219.404	n	(P-3892)	219.609	n		
218.948	n	(P-3675)	219.405	n	(P-3892)	219.610	n		
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218.963	n	(P-3675)	219.422	n	(P-3892)	219.612	n		
218.966	n	(P-3675)	219.423	n	(P-3892)	219.613	n		
218.967	n	(P-3675)	219.424	n	(P-3892)	219.620	n		
218.968	n	(P-3675)	219.425	n	(P-3892)	219.621	n		
218.980	n	(P-3675)	219.426	n	(P-3892)	219.623	n		
218.983	n	(P-3675)	219.427	n	(P-3892)	219.624	n		
218.986	n	(P-3675)	219.428	n	(P-3892)	219.625	n		
218.987	n	(P-3675)	219.429	n	(P-3892)	219.626	n		
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218.Ap. C	n	(P-3675)	219.445	n	(P-3892)	219.877	n		
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530.410	n	(P-2940)
530.420	n	(P-2940)
530.430	n	(P-2940)
530.440	n	(P-2940)
530.450	n	(P-2940)
530.460	n	(P-2940)
530.470	n	(P-2940)
530.480	n	(P-2940)
530.500	n	(P-2940)
530.501	r	(P-3003)
530.502	r	(P-3003)
530.503	r	(P-3003)
530.510	n	(P-2940)
530.520	n	(P-2940)
530.530	n	(P-2940)
530.600	n	(P-2940)
530.601	r	(P-3003)
530.602	r	(P-3003)
530.603	r	(P-3003)
530.610	n	(P-2940)
530.700	n	(P-2940)
530.701	r	(P-3003)
530.702	r	(P-3003)
530.710	n	(P-2940)
530.800	n	(P-2940)
530.801	r	(P-3003)
530.802	r	(P-3003)
530.803	r	(P-3003)
530.804	r	(P-3003)
530.810	n	(P-2940)
530.820	n	(P-2940)
530.830	n	(P-2940)
530.840	n	(P-2940)
530.900	n	(P-2940)
530.901	r	(P-3003)
530.902	r	(P-3003)
530.903	r	(P-3003)
530.904	r	(P-3003)
530.905	r	(P-3003)
530.906	r	(P-3003)
530.907	r	(P-3003)
530.908	r	(P-3003)
530.909	r	(P-3003)
530.11. A	r	(P-2940)
720.10	am	(P-3426)

TITLE 92 (CONT'D)		180,000	am
18.130	n	(P-3252)	(P-1447)
18.140	n	(P-3231)	(P-2940)
18.140	n	(P-3231)	(P-3003)
18.140	n	(P-3252)	(P-2940)
18.150	r	(P-3231)	(P-3003)
18.150	r	(P-3231)	(P-2940)
18.160	r	(P-3231)	(P-2940)
18.Ex.A	n	(P-3231)	(P-3003)
18.Ex.A	n	(P-3252)	(P-2940)
18.Ex.B	n	(P-3231)	(P-2940)
18.Ex.B	r	(P-3231)	(P-2940)
II.A	r	(P-3231)	(P-2940)
II.B	r	(P-3231)	(P-2940)
27.10	n	(P-15262/90; A-2796)	(P-3003)
27.20	n	(P-15262/90; A-2796)	(P-3003)
27.30	n	(P-15262/90; A-2796)	(P-3003)
27.40	n	(P-15262/90; A-2796)	(P-3003)
27.50	n	(P-15262/90; A-2796)	(P-3003)
27.60	n	(P-15262/90; A-2796)	(P-3003)
27.70	n	(P-15262/90; A-2796)	(P-3003)
27.80	n	(P-15262/90; A-2796)	(P-3003)
27.90	n	(P-15262/90; A-2796)	(P-3003)
27.100	n	(P-15262/90; A-2796)	(P-3003)
27.110	n	(P-15262/90; A-2796)	(P-3003)
27.120	n	(P-15262/90; A-2796)	(P-3003)
27.130	n	(P-15262/90; A-2796)	(P-3003)
27.140	n	(P-15262/90; A-2796)	(P-3003)
27.Ex.A	n	(P-15262/90; A-2796)	(P-3003)
37.10	n	(P-3275)	(P-3003)
37.20	n	(P-3275)	(P-3003)
37.30	n	(P-3275)	(P-3003)
37.40	n	(P-3275)	(P-3003)
37.50	n	(P-3275)	(P-3003)
37.60	n	(P-3275)	(P-3003)
37.70	n	(P-3275)	(P-3003)
37.80	n	(P-3275)	(P-3003)
37.90	n	(P-3275)	(P-3003)
37.100	n	(P-3275)	(P-3003)
37.110	n	(P-3275)	(P-3003)
37.120	n	(P-3275)	(P-3003)
37.130	n	(P-3275)	(P-3003)
37.140	n	(P-3275)	(P-3003)
37.Ex. A	n	(P-3275)	(P-3003)
57.10	n	(P-15283/90; A-2817)	(P-2940)
57.20	n	(P-15283/90; A-2817)	(P-2940)
57.30	n	(P-15283/90; A-2817)	(P-2940)
57.30	n	(P-15283/90; A-2817)	(P-2940)
57.40	n	(P-15283/90; A-2817)	(P-2940)
57.50	n	(P-15283/90; A-2817)	(P-2940)
57.60	n	(P-15283/90; A-2817)	(P-2940)
57.70	n	(P-15283/90; A-2817)	(P-2940)
57.80	n	(P-15283/90; A-2817)	(P-2940)
57.90	n	(P-15283/90; A-2817)	(P-2940)
57.100	n	(P-15283/90; A-2817)	(P-2940)
57.110	n	(P-15283/90; A-2817)	(P-2940)
57.120	n	(P-15283/90; A-2817)	(P-2940)
57.130	n	(P-15283/90; A-2817)	(P-2940)
57.140	n	(P-15283/90; A-2817)	(P-2940)
57.Ex.A	n	(P-15283/90; A-2817)	(P-2940)
171.6	am	(P-1452)	(P-3003)
171.1000	am	(P-1452)	(P-3003)
172.000	am	(P-1461)	(P-2940)
173.000	am	(P-1466)	(P-2940)
177.000	am	(P-1442)	(P-2940)
178.000	am	(P-1473)	(P-3003)
179.000	am	(P-1483)	(P-3003)







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